

4.0 AFFECTED ENVIRONMENT

4.1 GEOLOGY

4.1.1 Physiography

The proposed project is located within the Colorado Desert physiographic province, commonly referred to as the “low desert” in southern California. The Colorado Desert province is bounded on the east by the Colorado River, on the south by the Mexican border, and on the west and north by the Transverse Ranges. The Colorado Desert province is characterized by an arid climate, broad valleys, and low elevations, which are about 250 feet above mean sea level at the Riverside-Imperial County line. The dominant structural feature of the Colorado Desert province is the Salton Trough, a northwesterly extension of the Gulf of California, located in the southeastern portion of the desert province about 20 miles west of the pipeline route. Table 4.1.1-1 provides a summary of the geologic formations and topographic and elevational characteristics along the pipeline route.

The pipeline route and associated facilities typically are underlain by Quaternary (1.6 million years ago to present) alluvium, colluvium, and terrace deposits, which consist of unconsolidated to poorly consolidated gravel, sand, and silt. In the vicinity of the Algodones Dunes (MPs 75.0 to 79.8), the pipeline route is underlain by eolian deposits consisting of unconsolidated to poorly consolidated sand and silt.

Bedrock is exposed in areas along the eastern portion of the Palo Verde Mountains between MPs 28.5 and 31.6. The Palo Verde Mountains form the southwest wall of the Palo Verde Valley south of Blythe, California and reach a maximum elevation of 1,795 feet. Outcrops in this area generally consist of volcanic rocks (andesite, rhyolite, and volcaniclastic deposits) and the Bouse Formation claystone, siltstone, and sandstone.

4.1.2 Mineral Resources

Known geological resources such as gold, manganese, copper, and sand and gravel deposits occur within the project vicinity; however, the majority of these resources are not actively mined. Portions of the pipeline within Imperial County are in areas recognized as having a potential for oil, gas, sodium, and potassium.

The BOR operates a rock quarry between the Cibola National Wildlife Refuge (NWR) and SR 78. The pipeline would cross the northern portion of the parcel on which the quarry lies from MPs 29.2 to 29.6. With the exception of the BOR quarry, the nearest mine to the pipeline route is a gold placer mine located about 1 mile east of MP 67.0.

4.1.3 Geologic Hazards

Geologic hazards are natural physical conditions that can, when active, result in damage to the land and structures, or injury to people. Such hazards typically include seismicity (*i.e.*, faults, earthquakes, ground shaking), landslides, soil liquefaction, and karst terrain (*e.g.*, sinkholes or other water-formed/solution features). The potential for each of these hazards along the pipeline route is described below.

TABLE 4.1.1-1

Geologic and Physiographic Conditions Along the North Baja Pipeline Route

Facility/Milepost	Geologic Formation or Stratigraphic Unit (Geologic Age)	Topography and Elevation Range (above mean sea level)
Interconnect Pipeline a/		
	Younger alluvial, colluvial, and wash deposits (Quaternary) consisting of unconsolidated sand, gravel, and silt.	Broad flat terrain. Elevation ranges from 250 to 340 feet.
Mainline Pipeline		
0.0 to 12.0	Younger alluvial, colluvial, and wash deposits (Quaternary) consisting of unconsolidated sand, gravel, and silt.	Broad flat terrain. Elevation ranges from 250 to 340 feet.
12.0 to 26.25	Younger and older alluvial, colluvial, and wash deposits (Quaternary and Tertiary). The older deposits consist of poorly consolidated silt, sand, and gravel.	Generally flat terrain with some badlands. Elevation ranges from 240 to 340 feet.
26.25 to 26.75	Sedimentary clastic rocks (Tertiary) consisting of non-marine clastic rocks and volcanic conglomerates.	Uneven terrain along the base of the Palo Verde Mountains. Elevation ranges from 230 to 250 feet.
26.75 to 28.5	Alluvial, colluvial, and wash deposits (Quaternary) consisting of unconsolidated sand, gravel, and silt.	Uneven terrain along the base of the Palo Verde Mountains, elevation ranges from 230 to 300 feet.
28.5 to 31.0	Intrusive volcanic bodies (Tertiary) composed of andesite, dacite, or latite porphyry, which may be overlain by pyroclastic rocks and flows of acidic to intermediate composition in isolated locations.	Uneven/steep terrain above the base of the Palo Verde Mountains. Elevation ranges from 230 to 300 feet.
31.0 to 31.25	Sedimentary clastic rocks (Tertiary) consisting of non-marine clastic rocks and volcanic conglomerates.	Uneven terrain above the base of the Palo Verde Mountains. Elevation ranges from 235 to 300 feet.
31.25 to 31.6	Bouse Formation consisting of sedimentary and volcanic rocks (Tertiary). Sedimentary rocks consist of brackish water limestone, siltstone, and sandstone. A 1-foot-thick layer of volcanic tuff may be present at the surface masking the underlying sedimentary rocks.	Uneven/steep terrain above the base of the Palo Verde Mountains. Elevation ranges from 250 to 300 feet.
31.6 to 33.5	Sedimentary rocks that alternate between clastic rocks (Tertiary) and younger alluvial/colluvial deposits (Quaternary). Clastic rocks consist of non-marine clastic rocks and volcanic conglomerates. Alluvial and colluvial deposits consist of unconsolidated sand, gravel, and silt.	Uneven terrain with some badlands near the base of the Palo Verde Mountains. Elevation ranges from 250 to 340 feet.
33.5 to 36.25	Younger alluvial, colluvial, and wash deposits (Quaternary) consisting of unconsolidated sand, gravel, and silt.	Generally flat area crossing the Milpitas wash. Elevation ranges from 360 to 400 feet.
36.25 to 57.5	Younger and older alluvial deposits (Quaternary and Tertiary) consisting of unconsolidated clay, silt, sand, and gravels occurring primarily as valley fill and streamwash deposits.	Generally flat ascending terrain at the base of the Chocolate Mountains. Elevation ranges from 400 to 1,230 feet.
57.5 to 71.0	Older alluvium (Tertiary) consisting of partly dissected largely unconsolidated poorly sorted silt and gravel of alluvial fans, and desert pavement areas.	Generally flat descending terrain with some badlands. Elevation ranges from 350 to 700 feet.

TABLE 4.1.1-1 (cont'd)

Geologic and Physiographic Conditions Along the North Baja Pipeline Route

Facility/Milepost	Geologic Formation or Stratigraphic Unit (Geologic Age)	Topography and Elevation Range (above mean sea level)
71.0 to 79.8	Younger alluvial, colluvial, and wash deposits (Quaternary) consisting of unconsolidated sand, gravel, and silt.	Broad flat alluvial valley in the Salton Trough. Sand dunes present from MPs 75.5 to 79.8. Elevation ranges from 200 to 700 feet.

a/ The 0.1-mile-long interconnect pipeline between the tie-in with El Paso and the Ehrenberg Compressor Station is not mileposted.

Sources: California Division of Mines and Geology (CDMG), 1977. Geology and Mineral Resources of Imperial County, California, CDMG County Report 007.

CDMG, 1992a. Geologic Map Sheet of San Diego-El Centro, Scale 1:250,000. Fourth printing.

CDMG, 1992b. Regional Geologic Map Sheet of the Salton Sea, Scale 1:250,000. Fifth printing.

Norris R.M. and R.W. Webb. 1990. Geology of California, Second Edition. Published by Hohn Wiley & Sons, Inc.

Seismicity

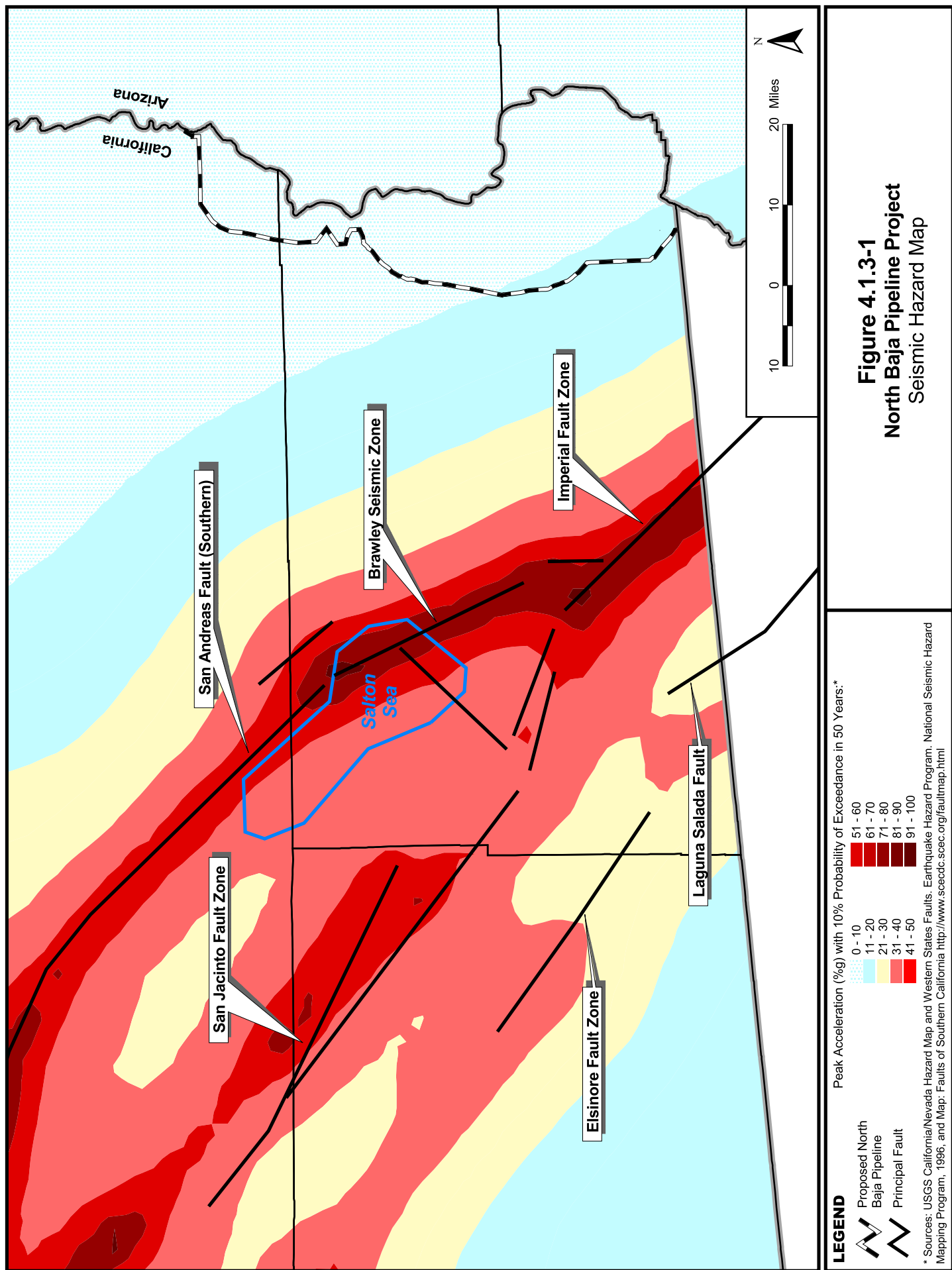
The pipeline route does not cross any active faults or mapped fault-rupture hazard zones as defined by the Alquist-Priolo Earthquake Fault Zoning Act. For the purpose of the Act, an active fault is defined as one that has “had surface displacement within the Holocene time” (11,000 years ago to present).

In the project area, the seismic hazard potential along the pipeline route increases from north to south. According to the 1997 Uniform Building Codes, the project area between MPs 0.0 to 45.0 is located in seismic hazard Zone 3. From MP 45.0 to the United States/Mexico border, the seismic risk increases to a Zone 4 classification, which is the highest risk zone. Regionally, seismicity has been attributed to active faulting along various fault zones and/or faults located approximately 30 miles or more west of the pipeline route. These primarily include the southern portion of the San Andreas Fault, the Brawley Seismic Zone, and the Imperial Fault Zone. The Imperial Fault is closest to the pipeline route. Principal faults in the project area are shown on figure 4.1.3-1.

Although the pipeline route is located in a seismically active region, the potential for strong ground accelerations in the immediate vicinity of the pipeline is relatively low. To quantify seismic hazards in any given region, the U.S. Geological Survey (USGS) developed maps of earthquake shaking hazards under the National Seismic Hazard Mapping Project (updated 1996). These maps are used to assess probabilistic seismicity and provide information used to create and update design provisions of building codes in the United States. These codes provide design standards for buildings, bridges, highways, and utilities such as natural gas pipelines. Values on these seismic hazard maps are expressed as a percentage of gravity (acceleration of a falling object due to gravity). The higher the value, the greater the potential hazard.

Peak ground acceleration along the southern one-third of the pipeline route, which has a higher seismic risk than the remainder of the route, is not expected to be more than 11 to 20 percent of gravity with a 1 in 10 chance of being exceeded in 50 years as compared to 91 to 100 percent of gravity for areas further west (California Division of Mines and Geology [CDMG], 1996; USGS, 1996). For the remainder of the project area, including the proposed location of the compressor station, the peak ground acceleration is not expected to exceed 10 percent of gravity with a 1 in 10 chance of being exceeded in 50 years (see figure 4.1.3-1).

Since 1906, 36 seismic events greater than or equal to a magnitude of 5.0 on the Richter scale have been recorded within 62 miles of the pipeline route, with the vast majority of these events occurring 30 or more miles west and southwest of the project area. The largest magnitude earthquakes occurred in 1940 and 1987, with a reported magnitude of 6.7 on the Richter scale (CDMG, 1996) and correspond to movement along the Imperial Fault. In addition, three other seismic events with maximum intensities of VIII (Modified Mercalli Intensity Scale) that were recorded in 1906, 1915, and 1930 appear to be associated with the Imperial Fault. The Modified Mercalli Intensity Scale is a range of “felt” intensities from I to XII. Slight to moderate damage in well-built ordinary structures begins to occur at intensity VII and an intensity of VIII is associated with considerable damage to ordinary buildings but only slight damage to specially designed structures. Based on seismic studies in California, Modified Mercalli Intensities of VI and VII generally correspond to a peak ground acceleration of 10 percent gravity described above.



Landslides

The terrain crossed by the majority of the pipeline route is relatively flat. Consequently, significant landslides or associated hazards are not anticipated. Within the Palo Verde Mountains foothills, where steep terrain exists along the pipeline route, NBP has conducted engineering and construction feasibility field reconnaissance and determined that the potential for rock falls/mass wasting would be minimal.

Soil Liquefaction

Liquefaction is a phenomenon in which saturated, cohesionless soils temporarily lose their strength and liquefy when subjected to dynamic forces such as intense and prolonged ground shaking. Liquefaction typically occurs when the water table is less than 50 feet below ground surface and the soils are predominantly unconsolidated. The potential for liquefaction increases as the groundwater approaches the surface.

Within the Palo Verde Valley (MPs 0.0 to 12), the depth to groundwater ranges between 2 and 10 feet below ground surface, due to its proximity to the Colorado River. This area has been identified as having liquefaction hazard potential by Riverside County. To the south of the Palo Verde Valley to about MP 79.0, the depth to groundwater exceeds 50 feet. Consequently, there is little or no potential for liquefaction to occur along this section of the pipeline. In the vicinity of the All American Canal, (MP 79.8), the depth to groundwater has been recorded as shallow as 35 feet below ground surface.

Karst Terrain

Karst features such as sinkholes, fissures, caves, and underground drainage form by dissolution of limestone, dolomite, gypsum, or other soluble rocks. These features can be hazardous due to associated ground failures. The geologic conditions required for karst development generally are not present along the pipeline route. The section of pipeline that would cross the southern portion of the Palo Verde Mountains (MPs 31.2 to 31.6) would likely encounter rock types from the upper section of the Bouse Formation. The Bouse Formation is identified as containing a basal limestone unit that is overlain by several hundred feet of thinly interbedded clay, silt, and sand; however, karst features in this area are not likely or anticipated.

4.1.4 Paleontological Resources

The proposed pipeline would cross several rock types/formations that have the potential to contain significant paleontological resources. While most geologic formations have the potential to contain fossils, those containing vertebrate fossils are considered to be most significant. Vertebrate fossils tend to be rare and fragmentary, and thus have greater scientific importance than the more common invertebrate and plant fossils.

To confirm the presence of rock units that could contain fossils, NBP's consultant, Paleo Resources Consultants, conducted paleontological literature and museum archival review and subsequent field survey. The objective of the field survey was to verify locations of known potential fossil-bearing rock units along the pipeline route (based on the literature and museum review) and to determine if special mitigation measures would need to be implemented to cross these areas. Although no known paleontological sites are crossed by the pipeline route, potentially important paleontological stratigraphic units are crossed. These include: Holocene and Pleistocene alluvial sediments, Pliocene marine sediments of the Bouse Formation, Miocene fanglomerates, and Early Tertiary volcanic and volcanoclastic rocks. Rock formations older than

the Early Tertiary volcanics typically consist of igneous and metamorphic type rocks not known to contain fossils.

Based on the literature and museum archival review and field survey, the paleontological sensitivity for stratigraphic units crossed by the pipeline route was determined. The potential for fossils based on paleontological sensitivity along the pipeline route is summarized by milepost in table 4.1.4-1.

As shown in table 4.1.4-1, Pleistocene older alluvium and the Pliocene Bouse Formation units both have a high potential to contain fossils. The Holocene alluvium, Miocene fanglomerate, and Early Tertiary volcanic rocks have a low potential for fossils.

TABLE 4.1.4-1		
Paleontological Sensitivity of Stratigraphic Units Occurring Along the North Baja Pipeline Route		
Mileposts	Stratigraphic Unit	Potential for Fossils
Interconnect Pipeline <u>a/</u>	Holocene alluvium	low sensitivity
Mainline Pipeline		
0.0-11.5	Holocene alluvium	low sensitivity
11.5-22.3	Pleistocene older alluvium	high sensitivity
22.3-25.2	Holocene alluvium	low sensitivity
25.2-25.8	Pleistocene older alluvium	high sensitivity
25.8-26.0	Holocene alluvium	low sensitivity
26.0-26.6	Miocene fanglomerate	low sensitivity
26.6-27.0	Holocene alluvium	low sensitivity
27.0-27.3	Miocene fanglomerate	low sensitivity
27.3-27.6	Holocene alluvium	low sensitivity
27.6-28.2	Pliocene Bouse Formation	high sensitivity
28.2-28.5	Holocene alluvium	low sensitivity
28.5-29.2	Pliocene Bouse Formation	high sensitivity
29.2-29.9	Early Tertiary volcanic rocks	low sensitivity
29.9-30.2	Pliocene Bouse Formation	high sensitivity
30.2-31.2	Early Tertiary volcanic rocks	low sensitivity
31.2-31.6	Pliocene Bouse Formation	high sensitivity
31.6-32.6	Miocene fanglomerate	low sensitivity
32.6-32.8	Holocene alluvium	low sensitivity
32.8-35.8	Miocene fanglomerate	low sensitivity
35.8-36.3	Holocene alluvium	low sensitivity
36.3-75.2	Pleistocene older alluvium	high sensitivity
75.2-79.8	Holocene alluvium	low sensitivity
<u>a/</u> The 0.1-mile-long interconnect pipeline between the tie-in with El Paso and the Ehrenberg Compressor Station is not mileposted.		

4.2 SOILS

4.2.1 Methodology and Description of Soils

The soils crossed by the North Baja pipeline route were analyzed using the State Soil Geographic (STATSGO) database developed by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) for use in regional, multi-state, river basin, state, and multi-county resource planning. STATSGO spatial data are compiled by combining geologically and topographically related soil series found in county soil surveys into larger map units called Map Unit Identifiers (MUIDs). The proposed pipeline route crosses seven MUIDs comprising 42 soil components (see figure 4.2.1-1). The characteristics of soils at the Ehrenberg Compressor Station site, the Ogilby Meter Station site, and the small segment of pipeline route in Arizona were further assessed using county soil surveys.

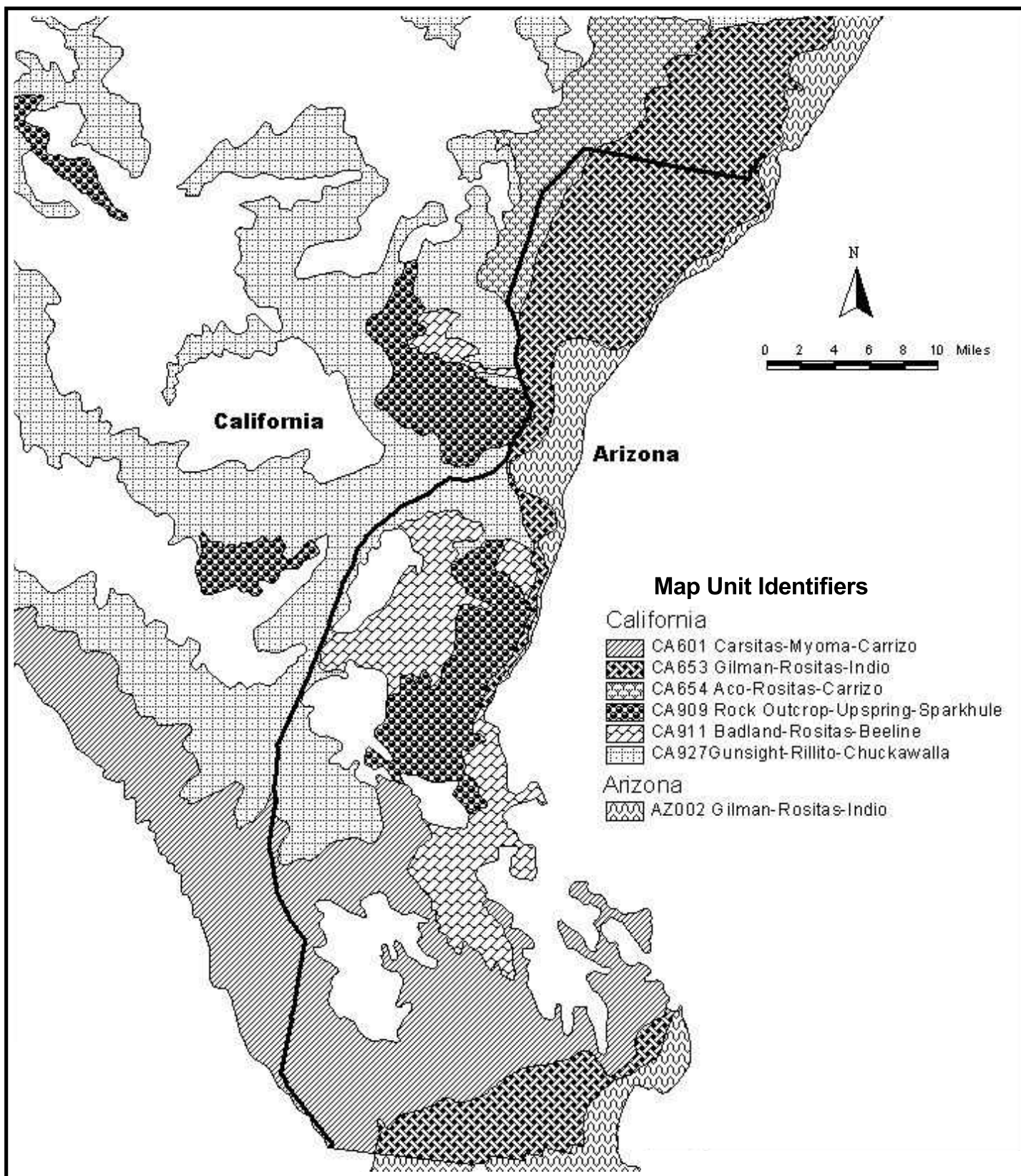
The soils crossed by the pipeline route in La Paz County, Arizona consist of silt and sandy loams and sands. Soils crossed by the pipeline route in the northern portion of Riverside County, California include sandy loams, silty clay loams, and silty clays. Soils crossed by the pipeline route in the southern portion of Riverside County include silty clays, sandy loams, gravelly loamy sands, gravelly sands, sand, dune land, and badlands. Soil types are diverse along the pipeline route in Imperial County, California, with loamy and fine sands; sandy, gravelly, and clay loams; and clay and silty clays, with badland and rock outcrops. Many areas along the southern portion of the route in Imperial County have a gravelly desert pavement present over the surface soils. In the Palo Verde Valley, the soils are primarily formed in sediments deposited by the Colorado River. These soils are highly productive and are ideal for agricultural use due to their mineral content.

4.2.2 Soil Limitations

We evaluated soils according to major limitations that could affect construction or increase the potential for soil impact. The primary limitations include high water erosion potential, high wind erosion potential, and shallow depth to bedrock. Each soil component was evaluated for these characteristics, then the total percentage of each MUID with these characteristics was summarized. These percentages, along with the length of pipeline route in each MUID, were used to estimate the acreage of soils with limitations that would be crossed by the pipeline. Table 4.2.2-1 summarizes soil limitations along the pipeline route by MUID and milepost.

The North Baja pipeline would cross 29.1 acres of soils with high water erosion potential, of which the majority occur in the agricultural area of the Palo Verde Valley between MPs 0.2 and 11.4; 124.1 acres of soils that are prone to high wind erosion potential, primarily between MPs 57.8 and 79.8; and 51.3 acres of soils where the depth to bedrock is less than 60 inches, mostly between MPs 11.4 and 31.0.

Compaction is normally a concern during pipeline construction. Soils that are poorly, somewhat poorly, or very poorly drained generally have compaction potential depending on soil texture. Based on STATSGO data, no poorly, somewhat poorly, or very poorly drained soils are crossed by the proposed pipeline route. Consequently, there is little potential for soil compaction.



LEGEND



Proposed North Baja Pipeline

Figure 4.2.1-1
North Baja Pipeline Project
STATSGO Soil Units

TABLE 4.2.2-1				
Soil Limitations Along the North Baja Pipeline Route				
Facility/Mileposts	Map Unit Identifiers (MUID)	High Water Erosion Potential (acres) <u>a/</u>	High Wind Erosion Potential (acres) <u>a/</u>	Potential for Shallow Depth to Bedrock (acres) <u>a/</u>
Interconnect Pipeline <u>b/</u>	AZ002	0.0	0.0	0.0
Mainline Pipeline				
0.0 - 0.2	AZ002	0.0	0.0	0.0
0.2 - 11.4	CA653	15.5 <u>c/</u>	3.9 <u>c/</u>	0.0
11.4 - 22.3	CA654	1.0	18.4	8.7
22.3 - 24.1	CA927	0.0	0.0	1.0
24.1 - 26.6	CA653	0.0	4.8	0.0
26.6 - 26.9	CA911	0.0	1.0	1.9
26.9 - 27.7	CA927	0.0	0.0	0.0
27.7 - 28.2	CA909	0.0	0.0	4.8
28.2 - 28.5	CA653	0.0	1.0	0.0
28.5 - 31.0	CA909	0.0	1.0	22.3
31.0 - 32.0	CA653	0.0	1.9	0.0
32.0 - 57.8	CA927	12.6	0.0	12.6
57.8 - 79.8	CA601	0.0	92.1	0.0
Total acres		29.1	124.1	51.3
<u>a/</u> The length of pipeline crossing each MUID was calculated by subtracting the beginning milepost from the ending milepost for each MUID. It was assumed that the frequency of occurrence of each individual component soil series along the pipeline route within each MUID is the same as its percent composition within the MUID.				
<u>b/</u> The 0.1-mile-long interconnect pipeline between the tie-in with El Paso and the Ehrenberg Compressor Station is not mileposted.				
<u>c/</u> Does not include soils along the portion of the route where the pipeline will be within the road or road shoulder of 18 th Avenue.				
Sources: STATSGO database; Imperial Irrigation District, 1967; U.S. Department of Agriculture Soil Conservation Service, 1974; U.S. Department of Agriculture Soil Conservation Service, 1980.				

Prime Farmland

The NRCS classifies the following soil types encountered in the project area as prime farmland: Indio silt loam in La Paz County; Aco gravelly loamy sand, Aco sandy loam, Orita gravelly fine sandy loam, and Rositas fine sand on 0 to 2 percent slopes in Riverside County; and Gilman fine sandy loam, Indio very fine sandy loam, Rositas fine sand on 0 to 2 percent slopes, and Rositas fine sand on 2 to 9 percent slopes in northern Imperial County. The southern portion of Imperial County has not been surveyed by the NRCS. Additionally, the California Department of Conservation also designates farmland of statewide and local importance. Farmland of statewide importance is similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date. Farmland of local importance is designated as land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. Table 4.2.2-2 lists by milepost the locations of prime farmland and farmland of statewide and local importance crossed by the pipeline route. A total of 164.1 acres of prime farmland and farmland of statewide and local importance would be crossed by the pipeline right-of-way and temporary extra workspace during construction.

TABLE 4.2.2-2					
Prime Farmland and Farmland of Statewide and Local Importance Crossed by the North Baja Pipeline Route					
Designation	Mileposts			Disturbance	
	La Paz County	Riverside County	Imperial County	Miles	Acres
Prime Farmland	Interconnect Pipeline <u>a/</u>			0.1	1.0
	0.0-0.2	0.8-5.4, 5.5-11.4		1.7 <u>b/</u>	47.0 <u>c/</u>
Farmland of Statewide Importance		2.2-5.4, 5.5-11.6		0.2 <u>b/</u> , <u>d/</u>	6.9 <u>c/</u> , <u>d/</u>
Farmland of Local Importance		0.3-0.8, 11.7-16.8, 17.0-19.8, 20.2-21.6, 22.1-22.2	22.3-22.5, 23.4-23.5, 23.9-24.4, 24.5-25.0	11.2	109.2 <u>c/</u>
Total				13.2	164.1
<u>a/</u> The 0.1-mile-long interconnect pipeline between the tie-in with El Paso and the Ehrenberg Compressor Station is not mileposted.					
<u>b/</u> From MPs 2.3 to 5.4 and MPs 5.5 to 11.4, impacts on prime farmland and farmland of statewide importance would be reduced by locating the pipeline within the 18 th Avenue easement. This is reflected in the totals.					
<u>c/</u> Includes disturbance resulting from use of temporary extra workspace during construction.					
<u>d/</u> Includes farmland of statewide importance only and not soils that are also designated as prime farmland.					
Source: California Department of Conservation, 1995a, 1995b; McDermott, 2000.					

4.2.3 Aboveground Facilities

The Ehrenberg Compressor Station, Ehrenberg Meter Station, one pig launcher, and one MLV would occupy about 12.4 acres of an 80-acre site in La Paz County, Arizona. About 95 percent of the soils on the 80-acre site are Indio silt loams, which are classified as prime farmland. The remaining soils on the site are sandy loams and sands of the Indio-Lagunita-Ripley Complex soil series. These soils have a slight potential for erosion.

The Rannells Trap and one MLV would occupy an approximately 0.3-acre site in Riverside County, California. Soils at this location are classified as belonging to the Rositas-Aco-Carrizo Association, which consists of moderately level well-drained sands and loams. These soils are not designated as prime farmland or farmland of statewide importance.

The Ogilby Meter Station, one pig receiver, and one MLV would occupy an 0.9-acre site just north of the Ogilby Road/I-8 interchange in Imperial County, California. The soils associated with the meter station site are in the Bitterspring-Harqua Association, which consists of desert pavement, clay loams, loams, sandy clay loams, and sandy loams. These soils may be limited by a slight potential for erosion and poor revegetation ability. The NRCS has not mapped these soils as prime farmland.

The remaining four MLVs would occupy a 50-foot by 50-foot area (0.06 acre) within the permanent right-of-way at MPs 5.7, 28.0, 41.6, and 60.3. These MLVs would not affect prime farmland, farmland of statewide importance, or farmland of local importance.

4.3 WATER RESOURCES

4.3.1 Groundwater

No EPA-designated sole source aquifers, known municipal/public water supply sources, wellhead protection areas, or springs would be crossed by the proposed project. Groundwater in the project area is primarily derived from unconsolidated to poorly consolidated alluvial sediments consisting of gravel, silt, sand, and clay associated with a complex system of basin-fill deposits. Many desert basins are characterized by broad alluvial fans and plains sloping to playas, creating closed drainage basins that are usually dry. Hydrologic characteristics can differ considerably from basin to basin and within basins. The majority of the groundwater underlying the pipeline route is used for irrigation, especially between MPs 0.0 and 11.6. Other local uses of groundwater in the project area include industrial and commercial processes and municipal and domestic water supplies. Small amounts of groundwater may also be found in the underlying bedrock, where it collects in fractures or weathered areas, but this groundwater is not considered a primary source.

The Colorado River Aquifer underlies the majority of the project facilities, including all of La Paz County, Arizona and Riverside County, California, and the northern portion of Imperial County, California. The pipeline route in the southern portion of Imperial County crosses a watershed described as the Amos Ogilby Hydrologic Unit. Groundwater recharge is attributable to the Colorado River floodplain alluvial deposits. Groundwater within these deposits is hydraulically connected to the river and is legally considered surface water. Other minor sources of groundwater recharge include groundwater inflow from adjacent areas, infiltration of precipitation that falls to the ground surface, infiltration from irrigation ditches and canals, and local runoff from surrounding mountains.

Depth to groundwater throughout the project area varies depending on the proximity of the area to the Colorado River or surface drainage from irrigated properties. Groundwater levels ranging from 2 to 10 feet below the surface have been recorded in the vicinity of the pipeline route in the Palo Verde Valley (approximately MPs 0.0 to 12.0), which is close to the Colorado River. Further south along the pipeline route, depth to groundwater tends to increase. Groundwater levels have been recorded at depths greater than 130 feet beneath the Palo Verde Mesa (approximately MPs 12.7 to 20.5), and depths of more than 400 feet below the land surface have been recorded near the Cargo Muchacho Mountains (approximately MP 66.8) and surrounding areas. Even further south along the pipeline route, depths to groundwater gradually decrease and have been recorded as shallow as approximately 35 feet below the ground surface in the vicinity of the All American Canal near MP 79.8.

Groundwater quality is influenced by local geology, the effects of agricultural irrigation, and the chemical characteristics of the Colorado River. High concentrations of total dissolved solids ranging from 400 to 3,000 milligrams per liter cause the chemical quality of groundwater in the project area to be relatively poor.

NBP identified six water wells within 1,500 feet of proposed construction work areas in California and no water wells within 1,500 feet of construction work areas in Arizona. Of the six nearby wells, only one was identified within 150 feet of the proposed construction work area. This well is located north of 18th Avenue near MP 7.9 and is assumed to be associated with an existing residence. Prior to construction, NBP would conduct a field survey to verify the location of this well and any other unidentified water wells and springs within 150 feet of construction work areas.

The proposed pipeline route would pass near a former waste disposal site and a landfill at MPs 5.7 and 26.4, respectively. The former waste disposal site was approximately 1 acre in size and located about 700 feet south of 18th Avenue (the proposed pipeline would be on the north side of 18th Avenue). This area was used to stockpile an assortment of construction debris including wood, concrete, tires, metal, and used equipment. The landfill is located about 500 feet east of the pipeline route and operated by Imperial County under lease from the BLM. The leased parcel is 40 acres in size, of which 31.2 acres are planned for landfill use of domestic and general building debris. Although the right-of-way would cross a corner of the Imperial County parcel on which the landfill is located, no active portion of the landfill would be crossed.

4.3.2 Surface Water

The North Baja pipeline would cross two watersheds: the Imperial Reservoir Watershed (about MPs 0.0 to 49.5) and the Salton Sea Watershed (about MPs 49.5 to 79.8) (USGS, 1987). Both watersheds have been classified as Category I watersheds in California's Unified Watershed Assessment (NRCS, 1998). This assessment is part of the Clean Water Action Plan, which is a national initiative to identify opportunities for finding comprehensive solutions to water quality problems in specific geographic areas. Category I watersheds are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals, with an emphasis on aquatic systems. Within these watersheds, the pipeline would cross 1 perennial waterbody (the Colorado River) and 579 dry desert washes ranging from 1 to 250 feet in width. Additionally, the pipeline route crosses 31 manmade irrigation canals and drains (including the All American Canal). Although we include manmade canals and drains in our discussion of waterbodies, the PVID contends that canals and drains are not regulated the same as natural rivers, streams, or washes occurring along the pipeline route. Table 4.3.2-1 lists the waterbodies crossed by the pipeline route, including crossing width, fishery type, and proposed crossing method. A detailed listing of the dry washes crossed by the pipeline route is included in appendix F.

All of the waterbodies in the Imperial Reservoir and Salton Sea Watersheds, including agricultural canals and drains, are listed by the California State Water Resources Control Board (CSWRCB) as impaired (EPA, 2000). This impairment is due to elevated pesticide and selenium levels in fish tissues, and toxic bioassay results that identified high pesticide levels in aquatic organisms. Agricultural runoff from irrigation practices has been identified as the primary source of impairment (EPA, 2000), and contaminated sediments may exist in the agricultural canals and drains from extensive pesticide use on irrigated croplands (California Regional Water Quality Control Board [CRWQCB], 1999).

Surface waters are classified by states according to the most beneficial existing and potential future uses of the waterbody and to provide protection for a variety of uses. The beneficial uses of surface waters in the project area include agricultural irrigation; municipal and domestic water supply; industrial service supply; groundwater recharge; contact (*e.g.*, swimming, wading, water-skiing, etc.) and noncontact (*e.g.*, boating, beachcombing, hiking, etc.) recreation; warm freshwater fish habitat; wildlife habitat; and preservation of rare, threatened, or endangered species (CRWQCB, 1994; NRCS, 1998). The water quality of the surface waters in the project area is generally poor and surface waters are highly saline or alkaline because of the predominance of sedimentary rocks, high evaporation rates, and low precipitation. The primary purpose of the agricultural drains in the project area is for the collection, transport, and storage of drainage waters from irrigated cropland to maintain adequate soil salinity balance for agriculture (CRWQCB, 1994).

TABLE 4.3.2-1					
Waterbodies, Canals, and Drains Crossed by the North Baja Pipeline Project					
Approximate Milepost	Waterbody Name	Type	Crossing Width (feet)	Fishery Type	Proposed Crossing Method
0.2	Colorado River	Perennial	790	Warmwater	Directional drill
1.3	D-10-13-42E	Delivery Canal	9	NC <u>a/</u>	Dry <u>b/</u>
1.7	D-10-13-45E	Delivery Canal	15	NC	Dry <u>b/</u>
1.9	D-10-13-47E	Delivery Canal	15	NC	Dry <u>b/</u>
2.2	D-10-13-49E	Delivery Canal	15	NC	Dry <u>b/</u>
2.3	D-10-13 (F)	Canal	40	NC	Dry <u>b/</u>
2.7	D-10-11-2N	Delivery Canal	2	NC	Dry <u>b/</u>
2.9	D-10-Siphon 48	Canal	15	NC	Dry <u>b/</u>
3.2	East Side Drain	Drain	2	NC	Dry <u>b/</u>
3.4	Goodman Drain	Drain	50	NC	Dry <u>b/</u>
3.6	D-Siphon-89	Canal	40	NC	Dry <u>b/</u>
3.9	Private	Canal	2	NC	Dry <u>b/</u>
4.4	D-19	Canal	15	NC	Dry <u>b/</u>
4.7	D-19-4N	Delivery Canal	2	NC	Dry <u>b/</u>
5.2	Lovekin Drain	Drain	30	NC	Dry <u>b/</u>
5.4	Private	Canal	2	NC	Dry <u>b/</u>
5.9	C-Siphon-56	Canal	42	NC	Dry <u>b/</u>
6.9	Central Drain	Drain	35	NC	Dry <u>b/</u>
7.9	C-05 Canal	Canal	17	NC	Dry <u>b/</u>
8.2	Private	Canal	9	NC	Dry <u>b/</u>
8.9	West Side Drain	Drain	40	NC	Dry <u>b/</u>
9.5	C-03 Canal	Canal	35	NC	Dry <u>b/</u>
9.9	C-03-64N	Delivery Canal	35	NC	Dry <u>b/</u>
10.3	C-03-16-3N Canal	Delivery Canal	40	NC	Dry <u>b/</u>
10.5	C-03-16 Canal	Canal	2	NC	Dry <u>b/</u>
10.7	C-03-16-6S	Delivery Canal	15	NC	Dry <u>b/</u>
10.9	C-03-16-1	Canal Heading	6	NC	Dry <u>b/</u>
10.9	C-03-16-8W	Delivery Canal	6	NC	Dry <u>b/</u>
11.2	Private	Canal	15	NC	Dry <u>b/</u>
11.4	Rannells Drain	Drain	60	NC	Open Cut
11.4	Private West Side of Drain	Canal	15	NC	Dry <u>b/</u>
79.8	All American Canal	Canal	200	NC	Directional Drill
<u>a/</u> NC = Not classified. <u>b/</u> Dry crossing would include boring beneath the existing canals and drains that are enclosed inside drain culverts under 18 th Avenue or installing the pipeline between the drain culvert and the road.					

Occasional high intensity rainfalls contribute to the highly turbid water flows that are observed in streams and rivers in the region. Dry washes flow primarily during these precipitation events. Flash floods can be caused by intense, short periods of rainfall and can move large loads of sediment, gravel, and larger debris over wide areas of drainage canal and desert washes.

Two major waterbodies (greater than 100 feet wide) would be crossed by the pipeline: the Colorado River (MP 0.2, 790 feet wide) and the All American Canal (MP 79.8, 200 feet wide). The Colorado River is the primary source for most of the irrigation water in the project area. Consequently, all of the flowing waterbodies crossed by the pipeline route have a hydrological connection to the Colorado River. The Colorado River is regulated by the COE under Section 10 of the Rivers and Harbors Act of 1899 for navigable waters. The All American Canal is under the jurisdiction of the BOR as part of a Federal irrigation system that diverts water from the Colorado River at the Imperial Dam near Yuma, Arizona and takes it across the Colorado Desert to provide water through a series of smaller canals into the Imperial and Coachella Valleys (Lycos, 2000).

The California Department of Health Services identified no large public water system intakes within 3 miles downstream of the Colorado River crossing location. Additionally, there are no public surface water supply intakes within 3 miles downstream of the All American Canal crossing location (Taylor, 2000). Three miles is the distance with which we consider a water supply could potentially be affected by pipeline construction.

None of the rivers, canals, or drains crossed by the pipeline route are listed on the Nationwide Rivers Inventory (NRI) or recognized as state-designated scenic rivers (NRCS, 1998).

The pipeline in California would cross within the 100-year flood hazard areas shown on Federal Flood Insurance Rate Maps at 2 named and 15 unnamed dry washes (Federal Emergency Management Agency [FEMA], 2000). These are at MPs 36.0 (Milpitas Wash), 38.0, 42.2, 50.5 to 52.5, 55.5, 58.0, 59.2 to 59.5, 60.1, 61.9, 63.3, 64.6 to 64.8, 65.9, 69.8 (American Girl Wash), 75.2, 77.0, 78.8, and 79.6.

There are no waterbodies at any of the proposed aboveground facility sites and none of the aboveground facilities would be located within a 100-year flood hazard area designated by the FEMA (Griffin, 2000; ESRI/FEMA, 2001).

4.4 WETLANDS

Wetlands in the vicinity of, or crossed by, the North Baja Pipeline Project were delineated using the methodology described in the U.S. Army Corps of Engineers (COE) Wetlands Delineation Manual (COE Manual), Technical Report Y-87-1, during July through October 2000. The pipeline route would cross eight wetlands for a total crossing length of 2,250 feet (0.4 mile). Four of the eight wetlands would be crossed by directional drilling. The location, wetland identifier, FWS National Wetlands Inventory (NWI) classification, and crossing length of each wetland is listed in table 4.4-1. The wetland classification presented follows Cowardin *et al.* (1979).

Two palustrine scrub-shrub wetlands are adjacent to the Colorado River between MPs 0.1 and 0.2 and would be avoided by the directional drill of the river. Vegetation in these wetlands includes arrow weed, tamarisk, and willow, as well as a few other species. Three other palustrine scrub-shrub wetlands are located between MPs 28.2 and 28.5. These are the three largest wetland areas crossed by the project. All three of these wetlands are sodic seasonal wetlands with visible efflorescence (salt) covering the surface and vegetation dominated by tamarisk, iodine bush, and greasewood.

Three palustrine emergent wetlands would be crossed by the pipeline. One of these is an emergent wetland in a topographic depression between an irrigation canal levee road and an adjacent agricultural field at MP 2.7. Dominant species in this wetland include nut sedge, Bermuda grass, and barnyard grass. The other two emergent wetlands are located on the north and south banks of the All American Canal at MP 79.8.

Dominant vegetation within these two wetlands is giant reed. Both of these wetlands would be avoided by the directional drill of the canal.

TABLE 4.4-1				
Wetlands Crossed by the North Baja Pipeline Project				
Approximate Milepost	County, State	Wetland Identifier	NWI Classification <u>a/</u>	Crossing Length (feet)
0.1	La Paz, AZ	P26-WE-1	PSS/PEM	250 <u>b/</u>
0.2	La Paz, AZ	P24-WE-1	PSS	50 <u>b/</u>
2.7	Riverside, CA	N55-WE-3	PEM	70
28.2	Imperial, CA	N68-WE-29	PSS	360
28.3	Imperial, CA	N69-WE-29	PSS	970
28.5	Imperial, CA	N70-WE-29	PSS	515
79.8	Imperial, CA	D18-WE-81C	PEM	15 <u>b/</u>
79.8	Imperial, CA	P1-WE-80	PEM	20 <u>b/</u>
			Total	2,250
<u>a/</u> NWI Wetland Classification (Cowardin <i>et al.</i> , 1979): PSS = Palustrine scrub-shrub PEM = Palustrine emergent				
<u>b/</u> Would be crossed by directional drill.				

The drains crossed in the Palo Verde Valley contain vegetation typical of the wetland communities in the area. However, these drains are not considered jurisdictional by the COE and are occasionally dredged.

No wetlands are present at any of the aboveground facility sites.

4.5 VEGETATION

4.5.1 Vegetation Communities

Pipeline Facilities

The North Baja pipeline route is entirely within the Lower Colorado River Valley subdivision of the Sonoran Desert, and vegetation communities found in the project vicinity are typical of that subdivision. The characterization of vegetation communities that we present in this draft EIS/EIR and draft plan amendment is based on the published and unpublished literature (Holland, 1986; Sawyer and Keeler-Wolf, 1995) as well as information from NBP's field surveys. About 85 percent of the pipeline route crosses scrub-shrub desert comprising Sonoran creosote bush scrub (72 percent), desert wash woodland (12 percent), and tamarisk scrub (<1 percent). Other vegetative communities crossed by the pipeline route include agricultural lands (3 percent) and wetlands (<1 percent). These communities are described below. About 11 percent of the pipeline route crosses non-vegetated areas such as developed/transportation areas and open water. Non-vegetated areas are described in section 4.8.1.

Sonoran Creosote Bush Scrub - Sonoran creosote bush scrub is the most common vegetation type and covers about 57.8 miles of the proposed pipeline route. Shrubs in this community are generally less than 10 feet tall, and are widely spaced, usually with bare ground between plants. Actual percent coverage by perennial vegetation is less than 25 percent. Although creosote bush occurs in other communities, this community type is recognized primarily by the lack of native desert trees. Along with creosote bush, other

species common to the type include white bursage, brittlebush, ocotillo, saltbushes, desert-holly, and mesquites. Because they include only a small portion of the project area, rocky slopes, stabilized sand dunes, and desert saltbush scrub communities are included in our general description of the Sonoran creosote bush scrub community.

Desert Wash Woodland - The pipeline route would cross about 9.8 miles of the desert wash woodland community type. Desert wash woodland communities consist of open to dense, drought deciduous, microphyllous riparian thorn scrub woodlands, less than 60 feet tall. These communities are typically dominated by one or several of the following tree species: ironwood, blue palo verde, and smoke tree. Desert wash woodlands are found in sandy or gravelly washes and arroyos in frost-free areas. These washes typically have braided channels that are substantially rearranged with every surface flow event. Other common species in this community are cat-claw acacia, desert broom, fairy duster, burrobrush, and Anderson's thornbush.

Tamarisk Scrub - The pipeline route would cross about 0.3 mile of tamarisk scrub not directly associated with wetlands. In general, tamarisk is able to outcompete native species and forms a near monoculture. Outside of wetlands, this species occurs primarily in sandy or gravelly braided washes and irrigation canals. Other species associated with tamarisk scrub include big saltbush and coyote willow.

Agricultural Lands - Agricultural lands occur along the pipeline route between the interconnect with El Paso and MP 11.5. However, construction along the proposed route through this section would include the Colorado River crossing and 9.1 miles within the 18th Avenue easement (paved and unpaved portions). Therefore, construction would only occur in 2.2 miles of agricultural fields. Commercial agriculture in the Ehrenberg, Arizona and Palo Verde Valley, California areas of the project route is entirely dependent upon irrigation to produce crops, including cotton, alfalfa, wheat, and melons.

Wetland Communities - Wetland communities are rare along the proposed pipeline route. Vegetation within the 0.4 mile of palustrine scrub-shrub and palustrine emergent wetland communities crossed by the pipeline route is discussed in section 4.4.

Aboveground Facilities

The sites for the Ehrenberg Compressor Station and Ehrenberg Meter Station are located in agricultural land. The sites for the Rannells Trap and the Ogilby Meter Station are located in Sonoran creosote bush scrub.

4.5.2 Noxious Weeds and Other Invasive Plants

Noxious weeds and other invasive plants are non-native, native, or introduced species that are able to outcompete native species, thereby excluding the native species and decreasing overall species diversity. Noxious weeds often invade and persist in areas after disturbance. Other aggressive plant species, both native and introduced, may also outcompete native and other beneficial species. Exotic, noxious, and invasive plants are known to occur in the project area in both Arizona and California. During March and April 2001, botanists for NBP conducted noxious weed surveys to evaluate the species present along the pipeline route. For the purpose of these surveys, NBP defined invasive, non-native plants as those species identified in the California Exotic Pest Plant Council's invasive plant *List A* (List-1 and A-2) and the *Red Alert* list (California Exotic Pest Plant Council, 1999).

Four non-native species were identified in significant numbers along the pipeline route, African mustard, Australian saltbush, fountain grass, and tamarisk. Each of these species is discussed below.

African mustard is an abundant annual weed found at low elevations throughout southwestern deserts of North America, including southern California and Arizona. It is most frequently found in washes, alkaline flats, and disturbed areas in the Sonoran Desert where it monopolizes available soil moisture. African mustard is the most common invasive, non-native plant species identified along the pipeline route and is found in varying densities between MPs 11.6 and 79.8. The species is relatively common in creosote bush scrub and desert wash woodland habitats. The highest densities of this species are associated with areas that have sandy substrates.

Australian saltbush is a drought-tolerant, low-growing shrub that is found mostly in waste places, shrubland, or woodlands below 3,280 feet in elevation in the Sonoran Desert and throughout southern California. It quickly invades newly developed lands, roadsides, coastal marshes, and the margins of cultivated fields. In the project area, Australian saltbush is known from one population along 18th Avenue adjacent to an agricultural field between MPs 9.9 and 10.4.

Fountain grass is a highly aggressive, fire-adapted colonizer that readily outcompetes native plants and rapidly reestablishes after burning. In southern California it is found in horticultural areas, grasslands, dunes, desert canyons, and along roadsides. In the project area, fountain grass is found in one location, along the access road on the north side of I-8 near MP 75.3.

Tamarisk or saltcedar is a fire-adapted species and has long tap roots that allows it to intercept deep water tables and interfere with natural aquatic systems. Found throughout the Colorado Desert, tamarisk disrupts the structure and stability of native plant communities and degrades native wildlife habitat by outcompeting and replacing native plant species; monopolizing limited sources of moisture; and increasing the frequency, intensity, and effect of fires and floods. Although it provides some shelter, the foliage and flowers of tamarisk provide little food value for native wildlife species that depend on nutrient-rich native plant resources. Tamarisk establishes in disturbed and undisturbed streams, waterways, bottomlands, banks and drainage washes of natural or artificial waterbodies, moist rangelands and pastures, and other areas where seedlings can be exposed to extended periods of saturated soil for establishment. Along the pipeline route tamarisk is found at a series of upland and wetland locations between MPs 0.4 and 28.7 (MPs 0.4 to 1.2, MP 1.9, MP 3.7, MPs 10.5 to 11.0, MP 11.2, MP 11.3, MP 11.5, MPs 11.6 to 11.7, MP 23.6, MP 23.8, MP 23.9, MPs 24.0 to 24.5, MPs 24.9 to 25.0, MP 27.9, MP 28.1, MPs 28.2 to 28.3, and MPs 28.5 to 28.7).

4.6 WILDLIFE AND AQUATIC RESOURCES

4.6.1 Wildlife Resources

Pipeline Facilities

The vegetative communities in the project area (described in section 4.5) serve as sources of nesting, cover, and feeding habitats for a variety of wildlife species (table 4.6.1-1). Although Sonoran creosote bush scrub is the most common habitat type along the pipeline route, many more wildlife species depend on desert wash woodland and wetland areas for their sources of water, cover, and forage.

In general, large mammals, except for the coyote, are unusual in the project area (Brown, 1982). However, mule deer, desert bighorn sheep, and introduced feral burros could occur as transients. Most of the mammals common to the general project area have adapted to high diurnal temperatures by spending

much of the day underground or aestivating. Consequently, the area may host large populations of burrowing rodents.

TABLE 4.6.1-1	
Wildlife Species by Habitat Type Common in the North Baja Pipeline Project Area	
Mammals	<p><u>Sonoran creosote bush scrub/desert wash woodland/wetland:</u> White-tailed antelope squirrel, coyote, mule (burro) deer, desert bighorn sheep, feral burro, desert pocket mouse, desert kangaroo rat, Merriam kangaroo rat, white-throated woodrat, long-tailed pocket mouse, round-tailed ground squirrel, desert cottontail rabbit, kit fox, southwestern yellow bat, little brown myotis, western mastiff bat, western pipistrelle, pallid bat, cave myotis, and California myotis.</p> <p><u>Agricultural/Residential Land:</u> Opossum.</p>
Birds	<p><u>Sonoran creosote bush scrub/desert wash woodland/wetland:</u> Burrowing owl, red-tailed hawk, Gambel's quail, cactus wren, Anna's hummingbird, Gila woodpecker, white-winged dove, and mourning dove.</p> <p><u>Agricultural/Residential Land:</u> European starling, American crow, mockingbird, house finch, and great egret.</p>
Reptiles	<p><u>Sonoran creosote bush scrub/desert wash woodland/wetland:</u> Desert glossy snake, western whiptail, sidewinder, southern desert whiptail, chuckwalla, Mojave fringe-toed lizard, side-blotched lizard, and desert night lizard.</p>
Source: http://www.desertusa.com/animal.html	

The open, sparsely vegetated habitats of the project area do not typically support diverse avifauna that are usually associated with structurally taller and denser habitats found in areas receiving more annual rainfall (Brown, 1982). The project area's avian inhabitants are largely arid-adapted desert species.

Rock outcrops, bajadas, washes, and gravel plains each support a varied and often different herpetofauna; however, certain species are common across most habitats (Brown, 1982).

Several species of habitat "generalists" occur only in the agricultural or residential areas crossed by the pipeline route. Some of the species listed in table 4.6.1-1 as common to the project area may be state-listed endangered or threatened species, or may be special status species throughout a larger geographic area. These species are discussed in section 4.7.

Aboveground Facilities

Wildlife use of the areas of the proposed aboveground facility sites is similar to adjacent habitats. Limited wildlife habitat exists in the agricultural land proposed for the Ehrenberg Compressor Station and the Ehrenberg Meter Station. Wildlife use of the Rannells Trap site is similar to that described above for Sonoran creosote bush scrub habitats. Wildlife use of the proposed Ogilby Meter Station location is likely limited due to the disturbed nature of the area and its proximity to I-8.

Migratory Birds

Migratory birds are those species that nest in the United States and Canada during summer, then migrate south to the tropical regions of Mexico, Central and South America, and the Caribbean for the non-breeding season. Bird diversity increases in the area during spring and fall when neotropical migrants (e.g.,

flycatchers, warblers, etc.) pass through en route to summer breeding or wintering grounds, and in winter when summer resident birds from the north (e.g., robins) arrive to spend the winter. The various migratory bird species use a vast array of habitat types, including the vegetative communities identified along the proposed pipeline route.

Managed and Sensitive Biological Resource Areas

The Cibola NWR, located about 20 miles south of Blythe along the lower Colorado River, is east of the proposed pipeline route near MPs 29.5 to 33.0. The NWR encompasses about 16,630 acres of land and is 12 miles long. The main channel of the Colorado River stretches the length of the refuge. The NWR provides habitat for over 240 species of birds, numerous mammals, and several protected species.

On BLM lands between MPs 29.2 and 52.0, the pipeline route crosses two special management areas in the vicinity of Milpitas Wash. Between MPs 29.2 and 33.8, the area is managed by the BLM Yuma Field Office as a SMA under the Yuma District Plan. The Yuma District Plan designates the 4,760-acre area as a SMA for its undisturbed desert vegetation, wildlife habitat, and cultural resources (BLM, 1985). Between MPs 33.8 and 52.0, the area is managed by the BLM El Centro Field Office as a Wildlife Habitat Area (WHA) under the Milpitas Wash WHMP (BLM, 1986). Management objectives for this 180,800-acre area include consolidation, protection, and enhancement of wildlife habitat and habitat for plants of special management concern; expansion of habitat used by burro deer and other native wildlife species; consideration of wildlife species in development and management decisions; and obtaining good ecological condition of 70 percent of the area covered by the habitat management plan.

The Nature Conservancy (TNC), with assistance from others, completed *An Ecological Analysis of Conservation Priorities in the Sonoran Desert Ecoregion (Ecological Analysis)* (Marshall *et al.*, 2000). The objective of the *Ecological Analysis* was to identify landscape-scale conservation sites that, with proper management, would help ensure the long-term persistence of the biodiversity in the Sonoran Desert. Generally, these conservation sites are areas containing sensitive vegetative communities or rare species at a density considered ecologically significant by regional experts. Of the 100 landscape-scale conservation sites identified by the *Ecological Analysis*, two appear to be crossed by the North Baja pipeline route. One of these conservation sites includes the Colorado River and adjacent riparian areas. This 434,141-acre conservation site is crossed by the pipeline route at MP 0.2. The *Ecological Analysis* reports 31 sensitive species or biotic communities associated with the river, including 18 species with protected status under Federal or state laws. The other conservation site includes the 1,143,211-acre Chocolate Mountains, which would generally be crossed between about MPs 27 and 34. The *Ecological Analysis* lists 28 sensitive species or biotic communities associated with the mountains, including 8 with protected status.

4.6.2 Aquatic Resources

Fishery resources in the waterbodies crossed by the pipeline route are limited to the Colorado River (MP 0.2) and the canals that withdraw water from it, including Rannells Drain (MP 11.4), the All American Canal (MP 79.8), and various other irrigation canals in the PVID near Blythe, California (MPs 0.2 to 11.8). In the project area, the Colorado River has had its flows reduced and confined behind dams forming large reservoirs. The normal heavy silt load has been reduced with the reservoirs acting as settling basins. This change in the flow of the river has led to a deposition of salts, fertilizers, and other products of irrigation agriculture in the sediments of the river, and has altered fish fauna composition. Representative fish species in the Colorado River and the larger canals that draw water from it include bass, bluegill, crappie, catfish, carp, sunfish, and sucker.

The CDFG classifies the Colorado River as a warmwater fishery (CDFG, 2000a). The CDFG has indicated that the fish species found in reaches of the irrigation canals associated with the river are similar to those in the Colorado River (Hayes, 2000). The irrigation canals and drains, however, do not have a classified fishery.

The pipeline route crosses 579 dry desert washes. Because flow is minimal in these washes, occurring only after rain, aquatic ecosystems have not developed. However, as discussed in section 4.6.1, the washes do provide habitat for terrestrial wildlife species.

Potential habitat for several federally and state-listed endangered and threatened fish species occurs in the surface waters crossed by the pipeline route. These species are discussed in section 4.7.

4.7 SPECIAL STATUS SPECIES

Section 7 of the Endangered Species Act (ESA), as amended, requires a Federal agency to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of a federally listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federally listed species. The agency is required to consult with the FWS to determine whether any federally listed or proposed listed endangered or threatened species or any of their designated critical habitat are found in the vicinity of the proposed project, and to determine the proposed action's potential effects on those species or critical habitats. For actions involving major construction activities with the potential to affect listed species or designated critical habitat, the Federal agency must prepare a Biological Assessment (BA) for those species that may be affected. The agency must submit its BA to the FWS and if it is determined that the action may adversely affect a listed species, the Federal agency must submit a request for formal consultation to comply with Section 7 of the ESA. In response, the FWS would issue a Biological Opinion (BO) as to whether or not the Federal action would likely jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of designated critical habitat. For the North Baja Pipeline Project, we have incorporated information necessary for a BA into this draft EIS/EIR and draft plan amendment. To initiate formal consultation in compliance with Section 7 of the ESA, we have requested that the FWS consider this document, along with various survey reports prepared by NBP, as our BA for the North Baja Pipeline Project.

California has its own Endangered Species Act (CESA) that requires state agencies to protect and promote the recovery of state-listed endangered or threatened species. Similar to the ESA, the CESA requires that state lead agencies consult with the CDFG to ensure that actions are not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat. Although Arizona does not have an equivalent endangered species law, Arizona Department of Game and Fish (ADGF) policy and a native plant law provide protection for some rare species. In addition to species listed as threatened or endangered under the ESA and CESA, agencies and organizations such as the FWS, the CDFG, the ADGF, the BLM, and the California Native Plant Society (CNPS) maintain lists of special concern, sensitive, or rare species that are also appropriate to consider in this NEPA and CEQA analysis.

For purposes of this environmental analysis, special status species of plants and animals include:

- species officially listed by California or the Federal government as endangered, threatened, or rare;
- species that are proposed for Federal listing as threatened;

- species considered sensitive or of special concern by the CDFG, the ADGF, the BLM, or the FWS;
- plants occurring on Lists 1A, 1B, 2, 3, and 4 of the CNPS' *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik, 1994); and
- species protected by the Migratory Bird Treaty Act of 1918 (as amended) that were identified by resource agencies as species of concern and that potentially occur in the project area (pursuant to Executive Order 13186).

With assistance from NBP, the FERC and CSLC staff informally consulted with the FWS, the CDFG, the ADGF, and the BLM to assess impacts on special status species (ADGF, 2000; CDFG, 2000a; FWS, 2000b-c; Wright, 2001). Initially these resource agencies identified 59 special status species requiring consideration in this NEPA/CEQA analysis (see table 4.7-1). Biologists with NBP conducted a field-based habitat evaluation to determine the potential for the occurrence of these special status species or their habitats in the project area during July, August, and September 2000. NBP conducted more focused habitat evaluations and species-specific surveys in early 2001 to further assess the potential for the project to impact special status species. The design and methodology of all of the special status species surveys were based on established protocols and/or were developed in consultation with biologists from the FWS, the BLM, and the CDFG. NBP provided detailed reports presenting the results of special status species surveys to the FWS, the CDFG, and the BLM (Foster Wheeler Environmental Corporation, 2001a-d; Konecny Biological Services, 2001).

Twenty-three of the special status species originally identified by the FWS, the CDFG, the ADGF, and the BLM were eliminated from further consideration in our environmental analysis because they are not known to occur or lack suitable habitat in the project area, or have transient habits (*i.e.*, migratory or highly mobile over large territories) that make them unlikely to be adversely affected either by the temporary or permanent impacts associated with the proposed facilities (see table 4.7-1). Presented below is a detailed discussion of the 36 species that are known or are likely to occur in the project area and could potentially be affected by the project, or that were identified as of particular interest during the public scoping process. These species and the general locations where they may occur are listed in table 4.7-1.

TABLE 4.7-1

**Special Status Species Initially Identified as Potentially
Occurring in the Vicinity of the North Baja Pipeline Project**

Species	Status <u>a/</u>			Eliminated From Further Consideration	General Locations Where Species May Occur
	Federal	State	Other		
Mammals					
California leaf-nosed bat <i>Macrotus californicus</i>		SC	BLM-S		No known active roosting structures near the pipeline route.
Cave myotis <i>Myotis velifer</i>	SC	SC	BLM-S		No known active roosting structures near the pipeline route.
Colorado River cotton rat <i>Sigmodon arizonae plenus</i>		SC		Known occurrences east of Blythe and at the Colorado River near Palo Verde; not found near the pipeline route.	
Nelson's bighorn sheep <i>Ovis canadensis nelsoni</i>			BLM-S		Known occurrences and range of known subpopulations avoided by the pipeline route. Suitable habitat not crossed by the pipeline route except for corridors potentially used for transitory movement.
Pale big-eared bat <i>Corynorhinus townsendii pallescens</i>		SC	BLM-S		No known active roosting structures near the pipeline route.
Pallid bat <i>Antrozous pallidus</i>		SC	BLM-S		No known active roosting structures near the pipeline route.
Western mastiff bat <i>Eumops perotis californicus</i>		SC	BLM-S		No known active roosting structures near the pipeline route.
Birds					
Arizona Bell's vireo <i>Vireo bellii arizonae</i>		SE	MBT		Potential habitat identified at MPs 0-3 and MPs 31-33.
Bald eagle <u>b/</u> <i>Haliaeetus leucocephalus</i>	FT	SE	MBT		Potential habitat identified at MPs 0-12 and MPs 26-33. Surveys conducted between February and April 2001. No bald eagles were observed in the project area.

TABLE 4.7-1 (cont'd)

**Special Status Species Initially Identified as Potentially
Occurring in the Vicinity of the North Baja Pipeline Project**

Species	Status <u>a/</u>			Eliminated From Further Consideration	General Locations Where Species May Occur
	Federal	State	Other		
Black rail <u>b/</u> <i>Laterallus jamaicensis</i> <i>coturniculus</i>		ST	MBT		Potential habitat identified along the Colorado River and at MPs 0-12 and MPs 31-33. Focused surveys conducted in April 2001. No black rails identified in the project area.
Black-tailed gnatcatcher <i>Poliophtila melanura</i>			MBT		Very scarce in agricultural areas. Common along Colorado River in more arid, non-irrigated portions adjacent to the river; section of Colorado River along the pipeline route is agricultural.
Brown-crested flycatcher <i>Myiarchus tyrannulus</i>		SC	MBT	Breeds along the length of the Colorado River from Needles to Yuma, Arizona. Not found on the west side of the Colorado River. Not known to occur in areas impacted by the project.	
Brown pelican <u>b/</u> <i>Pelecanus occidentalis</i>	FE		MBT	Coastal bird that uses the desert areas as a migratory stop; only found near the ocean.	
Burrowing owl <i>Athene cunicularia</i>		SC	BLM-S/ MBT		Potential habitat identified at MPs 0-12, MPs 22-26, MPs 31-33, and MPs 79-79.8. Surveys conducted between January and April 2001. About 25.1 acres of burrowing habitat found in project area.
Cliff swallow <i>Hirundo pyrrhontoa</i>			MBT		Potential habitat identified at MPs 0-12 and MPs 79-79.8.
Crissal thrasher <i>Toxostoma crissale</i>		SC	MBT		Potential habitat identified along the Colorado River (MPs 0-3) and at MPs 24-29 and MPs 31-33. Surveys conducted in March and April 2001. About 11.2 acres of suitable habitat found in the project area.
Elf owl <i>Micrathene whitneyi</i>		SE	MBT		Potential habitat identified at MPs 0-12, MPs 22-23, MPs 35-36, MPs 41-46, MPs 50-53, and MPs 59-66.

TABLE 4.7-1 (cont'd)

**Special Status Species Initially Identified as Potentially
Occurring in the Vicinity of the North Baja Pipeline Project**

Species	Status <u>a/</u>			Eliminated From Further Consideration	General Locations Where Species May Occur
	Federal	State	Other		
Gila woodpecker <i>Melanerpes uropygialis</i>		SE	MBT		Potential habitat identified at MPs 0-12, MPs 22-33, MPs 35-36, MPs 41-46, MPs 50-53, and MPs 59-66.
Gilded flicker <i>Colaptes chrysoides</i>		SE	MBT		Potential habitat identified at MPs 22-23, MPs 35-36, MPs 41-46, MPs 50-53, and MPs 59-66.
Great egret <i>Ardea alba</i>		WC	MBT		Potential habitat identified at MPs 0-12, MPs 22-26, MPs 31-33, and MPs 79-79.8.
LeConte's thrasher <i>Toxostoma lecontei</i>		SC	BLM-S/ MBT		Potential habitat identified at MPs 12-79.8. Surveys conducted in March and April 2001. About 662.3 acres of suitable habitat found in the project area.
Mountain plover <i>Charadrius montanus</i>	FPT	SC	MBT		Potential habitat identified at MPs 0-12 and MPs 22-26. Surveys conducted in January and February 2001. No mountain plovers identified in the project area.
Peregrine falcon <u>b/</u> <i>Falco peregrinus</i>		SE	MBT	No appropriate nesting habitat found in the project area. Project is not within the historic distribution or breeding range.	
Sonoran yellow warbler <i>Dendroica petechia sonorana</i>		SC	MBT		No known occurrence in project area; marginal habitat identified along the Colorado River (MPs 0-3) and at MPs 22-23 and MPs 31-33.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	FE	SE/WC	MBT		Potential habitat identified along the Colorado River (MPs 0-3) and MPs 31-33. Surveys to be conducted between May 15 and July 17, 2001.
Summer tanager <i>Piranga rubra</i>		SC	MBT	No potential habitat found near the pipeline route.	
Swainson's hawk <i>Buteo swainsoni</i>		ST	MBT	Project area is outside of the known historic range and breeding range.	

TABLE 4.7-1 (cont'd)

**Special Status Species Initially Identified as Potentially
Occurring in the Vicinity of the North Baja Pipeline Project**

Species	Status <u>a/</u>			Eliminated From Further Consideration	General Locations Where Species May Occur
	Federal	State	Other		
Vermilion flycatcher <i>Pyrocephalus rubinus</i>		SC	MBT		Potential habitat identified at MPs 0-12, MPs 22-29, MPs 31-33, MPs 35-53, MPs 59-66, and MPs 79-79.8.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>		SE	MBT		Potential habitat identified at MPs 31-33. Surveys to be conducted in the summer of 2001.
Yellow breasted chat <i>Icteria virens</i>		SC	MBT	Species known from very localized occurrences. Not known to occur west of the Colorado River. Not known to occur in areas impacted by the project.	
Yuma clapper rail <u>b/</u> <i>Rallus longirostris yumanensis</i>	FE	ST	MBT		Potential habitat identified along the Colorado River and at MPs 0-12 and MPs 31-33. Surveys conducted in April 2001. No Yuma clapper rails identified in the project area.
Amphibians/Reptiles					
Colorado Desert fringe-toed lizard <i>Uma notata notata</i>		SC	BLM-S		Refined habitat analysis indicates pipeline route between MPs 71 and 79.8 is favorable (0.4 mile), transitional (4.1 miles), or unfavorable (4.3 miles).
Couch's spadefoot toad <i>Scaphiopus couchi</i>		SC			Known population along desert wash crossed by pipeline route.
Desert tortoise <u>b/</u> <i>Gopherus agassizii</i>	FT	ST			Desert tortoise habitat is found along the route between MPs 16 and 75.2 (FWS-designated critical habitat at MPs 34-58.4; BLM Category I and II habitats also crossed). Surveys conducted in March and April 2001. NBP observed desert tortoises, burrows, and various sign at many locations along the pipeline route.

TABLE 4.7-1 (cont'd)

**Special Status Species Initially Identified as Potentially
Occurring in the Vicinity of the North Baja Pipeline Project**

Species	Status <u>a/</u>			Eliminated From Further Consideration	General Locations Where Species May Occur
	Federal	State	Other		
Flat-tailed horned lizard <u>b/</u> <i>Phrynosoma mcallii</i>		SC	BLM-S		Refined habitat analysis indicates pipeline route between MPs 71 and 79.8 is favorable (0.4 mile), transitional (4.1 miles), or unfavorable (4.3 miles). Flat-tailed horned lizards were observed between MPs 77 and 78 during surveys in 2000 and 2001.
Mojave fringe-toed lizard <i>Uma scoparia</i>		SC	BLM-S		Potential habitat identified on the Palo Verde Mesa (MPs 11.6-22).
Fish					
Bonytail chub <i>Gila elegans</i>	FE				Species may occur in the project area at the Colorado River crossing (MP 0.2).
Desert pupfish <i>Cyprinodon macularius</i>	FE	SE		Nearest known occurrence is in the Arrowweed Spring Refugium in the Chocolate Mountains. No appropriate habitat found in areas that would be impacted by construction of the project.	
Gila topminnow <i>Poeciliopsis occidentalis occidentalis</i>	FE				Species may occur in the project area at the Colorado River crossing (MP 0.2).
Razorback sucker <u>b/</u> <i>Xyrauchen texanus</i>	FE	SE			Species may occur in the project area at the Colorado River crossing (MP 0.2) and the Palo Verde Outfall Drain (MPs 24-31).
Plants					
Algodones dune sunflower <i>Helianthus niveus tephrodes</i>	SC	SE	1B	Not found during botanical survey of the project area.	
Angel trumpets <i>Acleisanthes longiflora</i>			2	Not found during botanical survey of the project area.	
Borrego milkvetch <i>Astragalus lentiginosus</i> var. <i>borreganus</i>			4	Not found during botanical survey of the project area.	
Crown-of-thorns <i>Koeberlinia spinosa tenuispina</i>			2	Not found during botanical survey of the project area.	

TABLE 4.7-1 (cont'd)

**Special Status Species Initially Identified as Potentially
Occurring in the Vicinity of the North Baja Pipeline Project**

Species	Status <u>a/</u>			Eliminated From Further Consideration	General Locations Where Species May Occur
	Federal	State	Other		
Crucifixion thorn <i>Castola emoryi</i>			2	Not found during botanical survey of the project area.	
Desert unicorn-plant <i>Proboscidea althaeifolia</i>			4		Plants occur along the route at MPs 23.4-32.1 and MPs 75.0-78.8.
Fairyduster <i>Calliandra eriophylla</i>			2		Plants occur along the route at MPs 45.1-49.8, MPs 53.6-57.4, and MPs 65.1-66.6.
Foxtail cactus <i>Escobaria vivipara</i> var. <i>alversonii</i>			1B/BL M-S	Not found during botanical survey of the project area.	
Giant Spanish-needle <i>Palafoxia arida</i> var. <i>gigantea</i>	SC		1B/BL M-S	Not found during botanical survey of the project area.	
Glandular ditaxis <i>Ditaxis clariana</i>			2	Not found during botanical survey of the project area.	
Harwoods milkvetch <i>Astragalus insularis</i> var. <i>harwoodii</i>			2	Not found during botanical survey of the project area.	
Mud nama <i>Nama stenocarpum</i>	SC		2	Not found during botanical survey of the project area.	
Munz's cholla <i>Opuntia munzii</i>	SC		1B/BL M-S	Not found during botanical survey of the project area.	
Peirson's milkvetch <i>Astragalus magdalenae</i> var. <i>peirsonii</i>	FT	SE	1B		Potential habitat identified at MPs 72-79.8. Not found during botanical survey of the project area.
Saguaro <i>Carnegiea gigantea</i>			2	Not found during botanical survey of the project area.	
Sand food <i>Pholisma sonora</i>	SC		1B	Not found during botanical survey of the project area.	
Spiny abrojo <i>Condalia globosa</i> var. <i>pubescens</i>			4		Plants occur along the route at MPs 45.1-46.5.
Wiggins's cholla <i>Opuntia wigginsii</i>			3	Not found during botanical survey of the project area.	
Wiggins's croton <i>Croton wigginsii</i>		SR	2	Not found during botanical survey of the project area.	

TABLE 4.7-1 (cont'd)

**Special Status Species Initially Identified as Potentially
Occurring in the Vicinity of the North Baja Pipeline Project**

Species	Status <u>a/</u>			Eliminated From Further Consideration	General Locations Where Species May Occur
	Federal	State	Other		

a/ Status:

- FE = Federally listed as endangered
- FT = Federally listed as threatened
- FPT = Proposed for Federal listing as threatened
- SE = California state-listed as endangered
- ST = California state-listed as threatened
- SR = California state-listed as rare (California Native Plant Protection Act)
- SC = Federally/California state-listed as Special Concern
- WC = Arizona Wildlife of Special Concern
- MBT = Species protected under the Migratory Bird Treaty Act
- 1B = CNPS list of plants that are rare, threatened, or endangered in California and elsewhere
- 2 = CNPS list of plants that are rare, threatened, or endangered in California, but more common elsewhere
- 3 = CNPS list of plants about which more information is needed to determine their status
- 4 = CNPS list of plants that are limited in distribution
- BLM-S = Bureau of Land Management Sensitive

- b/ Fully Protected or Protected species. These species may not be taken or possessed without a permit from the California Fish and Game Commission and/or the California Department of Fish and Game (see California Code of Regulations, Title 14, Division 1, Chapter 2, Article 4, § 5.93 [Chapter 5, § 41-42 for reptiles and amphibians]).

4.7.1 Federally Listed or Proposed Listed Species

Based on consultations with the Arizona and Carlsbad Field Offices of the FWS, 11 federally listed or proposed listed species were identified as potentially occurring in the project area (FWS, 2000b-c). Of the 11 species, 9 are known or suspected to occur in the project area and could potentially be affected by the project. These nine species are discussed below. The other two species (brown pelican and desert pupfish) are not considered further for the reasons given in table 4.7-1.

Bald Eagle

The bald eagle is currently federally listed as threatened and California-listed as endangered. Since its diet consists mostly of fish, bald eagles tend to be found associated with large lakes, rivers, reservoirs, and some coastal areas. In these habitats bald eagles will select perches such as large, stoutly limbed trees, snags, broken-topped trees, or rocks near water that provide easy access to hunting or feeding areas. Historically, populations of bald eagles were drastically reduced principally due to low productivity as a result of the bioaccumulation of pesticides. Since the banning of organochlorine pesticides such as DDT, bald eagle numbers have been increasing, leading to the species being proposed for delisting on July 4, 1999 as "recovered." The bald eagle will, however, remain protected as a threatened species by the ESA until delisting is finalized. Although this species breeds in parts of California, bald eagles potentially found in the project area would primarily be limited to birds migrating along the Colorado River during the winter months. Initially, NBP identified potential habitat for this species from MPs 0.0 to 12.0 and MPs 26.0 to 33.0. To assess the presence of bald eagles in the project area, biologists for NBP visited areas with large trees or cliffs within 1,100 feet of the pipeline route during February, March, and April 2001. Bald eagles were not observed during these surveys (Foster Wheeler Environmental Corporation, 2001e).

Mountain Plover

The mountain plover is proposed for Federal listing as threatened and is a California species of special concern. Mountain plovers typically are found in areas of short grass plains, low rolling grassy fields, freshly plowed fields, newly sprouting grain fields, and occasionally sod farms. Mountain plovers do not breed in California, but they winter from northern California south to north-central Mexico and east to central Texas. Along the lower Colorado River Valley the mountain plover is an uncommon transient and irregular winter visitor from mid-September to mid-March.

A preliminary habitat evaluation conducted by NBP indicated that suitable habitat for this species occurs in the agricultural areas crossed or located near the pipeline route (MPs 0.0 to 12.0 and MPs 22.0 to 26.0). Using survey methods identified in the *Draft Mountain Plover Survey Guidelines* (FWS, 1999), biologists visited areas of potential habitat in January and February 2001. Mountain plovers were not observed during these surveys (Foster Wheeler Environmental Corporation, 2001a).

Southwestern Willow Flycatcher

The southwestern willow flycatcher is federally and California-listed as endangered. The ADGF lists the southwestern willow flycatcher as a species of special concern. A small, rare, insectivorous bird of riparian woodlands, southwestern willow flycatchers migrate to wintering grounds between central Mexico and northern South America. During the breeding season (April to September) this bird may be found in suitable habitat in southern California, Arizona, New Mexico, extreme southern portions of Nevada and Utah, extreme southwest Colorado, and western Texas. This species is most frequently found along perennial streams, wetlands, and other riparian areas containing dense patches of willows (*Salix* sp.), tamarisk, or

Russian olive. In the project area, suitable habitat for the southwestern willow flycatcher has been found along the lower Colorado River, Blythe, and Davis Lake areas (MPs 0.0 to 3.0 and MPs 31.0 to 33.0). To assess whether southwestern willow flycatchers occupy these areas, biologists will follow current survey protocols (National Park Service, 1997; FWS, 2000a) and visit areas of potential habitat on five separate occasions during the summer of 2001.

Yuma Clapper Rail

The Yuma clapper rail is federally listed as endangered and California-listed as threatened. In California, the Yuma clapper rail is found between April and September in freshwater and brackish emergent wetlands along the Colorado River and around the Salton Sea. Although this species requires mature stands of cattails and bulrushes for cover, it can be found foraging in adjacent areas of shallow water and mudflats for crayfish, clams, and insects. Preliminary habitat evaluations conducted by NBP indicated that potential habitat for this species is found in freshwater marshes, wetlands, and drains along the pipeline route near the Colorado River, the Palo Verde Valley, and the Davis Lake areas (MPs 0.0 to 12.0 and MPs 31.0 to 33.0). During more focused surveys conducted on two separate visits in April 2001, biologists carefully looked for rails and listened for responses to taped vocalizations of rails. Biologists did not identify any Yuma clapper rails in the project area during these surveys (Konecny Biological Services, 2001).

Desert Tortoise

The desert tortoise, a federally and California-listed threatened species, is widely distributed throughout the Mojave and Colorado deserts from below sea level to elevations of about 4,130 feet or higher. It is most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except on the most precipitous slopes. Highest tortoise densities are achieved in creosote bush communities with extensive annual wildflower blooms. This species requires friable soil for burrow and nest construction.

In the vicinity of the North Baja Pipeline Project, the creosote scrub habitats east of the Mule Mountains extending south to I-8 (MPs 16.0 to 75.2) are potentially suitable habitat for the desert tortoise. A portion of this (MPs 34.0 to 58.4) is part of the Chuckwalla Unit, an area designated by the FWS as critical habitat for the desert tortoise (50 CFR 17.95). The Chuckwalla Unit includes privately owned land as well as land managed by the BLM.

To assist in maintaining stable, viable populations of desert tortoises, the BLM defines tortoise habitat it manages as Category I, II, or III according to relative importance, manageability, and population densities (BLM, 1980). Although these areas do not encompass all potentially suitable desert tortoise habitat, they include habitat the BLM considers the most important for the tortoise. All of the BLM's defined tortoise habitat that is crossed by the North Baja pipeline route is defined as Category I or II and is within FWS-designated critical habitat in the Chuckwalla Unit. Category I areas were established to protect existing tortoise habitat values and increase tortoise populations, where possible, while Category II areas were established to halt further decline of tortoise habitat values.

During March and April 2001, NBP conducted a desert tortoise survey between MPs 16.0 and 75.2. This survey followed methods developed from FWS protocols (FWS, 1992 and 1994a) and through consultation with BLM, CDFG, and FWS biologists. The survey consisted of experienced biologists searching all proposed construction work areas and a series of 30-foot-wide belt transects parallel to the proposed construction right-of-way. Table 4.7.1-1 lists the number of observations of desert tortoise and desert tortoise sign along the pipeline route. In addition to the surveys of the proposed pipeline route, NBP

conducted desert tortoise surveys of the Powerline North Alternative and the Cibola Variation (see sections 6.1.3 and 6.2.1, respectively).

TABLE 4.7.1-1						
Number of Observations of Desert Tortoise and Desert Tortoise Sign Found in the Vicinity of the North Baja Pipeline Project						
Sign	Mileposts					
	16.0-25.9	26.0-35.9	36.0-45.9	46.0-55.9	56.0-65.9	66.0-76.0
Scat/tracks	-	1	25	10	10	5
Burrows/pallet	4	1	39	38	14	2
Carcass/remains <u>a/</u>	1	3	13	14	5	-
Tortoise	-	-	24	17	9	-
<u>a/</u> Includes carcass, bones, scutes, and shell fragments.						

Bonytail Chub

The bonytail chub is a federally listed endangered fish found only in the Colorado River basin (Mueller, 2000). Bonytail chubs prefer pools and eddies of warm, often heavily silted, swift moving rivers. Although not crossed by the proposed pipeline route, the FWS has designated critical habitat for this species along the lower Colorado River Basin (50 CFR 17.95). The Colorado River (MP 0.2) is the only place in the project area where the bonytail chub could be found.

Gila Topminnow

The Gila topminnow is a federally listed endangered fish. This species uses small streams, springs, and mature marshlands (cienegas) in vegetated shallows and prefers the sluggish, shallow margins of freshwater habitats like those found at the Colorado River crossing at MP 0.2. In present habitats, Gila topminnows feed opportunistically on organic detritus, algae, insects, and crustaceans. Historically, this species has occurred in brackish waters of large rivers but is currently isolated to small streams and springs.

Razorback Sucker

The razorback sucker is a federally and California-listed endangered fish found only in large rivers of western North America's Colorado River basin (Mueller, 2000). Both a riverine and lacustrine species, razorback suckers (particularly juveniles) are found in low velocity main channel backwaters or off channel wetlands. This fish spawns in areas of sand, gravel, or rocks in shallow water. The project crosses under FWS-designated critical habitat for the razorback sucker at the Colorado River (FWS, 1994b). In addition to being found in the Colorado River (MP 0.2), this species is known to occur throughout the Palo Verde Outfall Drain. The pipeline route parallels the Palo Verde Outfall Drain from MPs 24.0 to 31.0.

Peirson's Milkvetch

The Peirson's milkvetch is a federally listed threatened and a California-listed endangered plant found in southern California, Arizona, and Baja California. Known from fewer than 20 occurrences in

California, this perennial herb is particularly threatened by OHV traffic (Skinner and Pavlik, 1994). Peirson's milkvetch is found growing on partially stabilized sand dunes. In the general vicinity of the project, Peirson's milkvetch is known to occur within the Algodones Dunes. Although the pipeline route avoids the dunes, a preliminary habitat evaluation identified potential habitat for the Peirson's milkvetch where the route passes near the eastern edge of the dunes (MPs 72.0 to 79.8). Botanists did not identify the Peirson's milkvetch in areas that would be disturbed by construction of the North Baja Pipeline Project during species-specific surveys conducted in April 2001 (Foster Wheeler Environmental Corporation, 2001c).

4.7.2 State-Listed Endangered or Threatened Species

Based on consultations with the ADGF and the CDFG, and a search of the California Natural Diversity Database, 16 state-listed or proposed listed threatened or endangered species were identified as potentially occurring in the project area. Seven of these are also federally listed. Based on habitat evaluations and species-specific surveys, 12 of these 16 species could potentially be affected by the project. Of the 12 that could be affected by the project, 6 species are federally listed and are discussed in section 4.7.1. The remaining six species are discussed below.

Arizona Bell's Vireo

The Arizona Bell's vireo is a California-listed endangered bird that inhabits desert riparian communities where thickets of willow (*Salix* sp.) and other low shrubs are found along water and intermittent streams. Occurring in areas of suitable habitat throughout the central and southwestern United States, in California the Arizona Bell's vireo is limited to a few locations along the Colorado River. In the project area, potential habitat for this species is associated with the Colorado River and the Davis Lake area (MPs 0.0 to 3.0 and MPs 31.0 to 33.0).

Black Rail

The black rail is a California-listed threatened bird. In California, this species is a year-long resident of saline, brackish, and fresh emergent wetlands south of the Sacramento-San Joaquin River Delta. In southeastern California, black rails are known from areas along the lower Colorado River and the Salton Sea. This species inhabits areas of dense bulrush stands, shallow water, and gently sloping shorelines. Preliminary habitat evaluations conducted by NBP indicated that potential habitat for this species is found in freshwater marshes, wetlands, and drains along the pipeline route near the Colorado River, the Palo Verde Valley, and the Davis Lake areas (MPs 0.0 to 12.0 and MPs 31.0 to 33.0). During more focused surveys conducted on two separate visits in April 2001, biologists carefully looked for rails and listened for responses to taped vocalizations of rails. Biologists did not identify any black rails in the project area during these surveys (Konecny Biological Services, 2001).

Elf Owl

The elf owl is California-listed as endangered. This species is very rare in California and is only found during spring and summer along the Colorado River Valley. Elf owls prefer springs and riparian thickets where they nest in woodpecker cavities of tall, old and decaying cottonwood, mesquite, and willow trees as well as in saguaro. Elf owls are not found in tamarisk thickets that now predominate many areas along the Colorado River (Gaines, 1988-1990). NBP reported that, based on a preliminary evaluation, potential habitat for the elf owl occurs along the pipeline route at MPs 0.0 to 12.0, MPs 22.0 to 23.0, MPs 35.0 to 36.0, MPs 41.0 to 46.0, MPs 50.0 to 53.0, and MPs 59.0 to 66.0.

Gila Woodpecker and Gilded Flicker

The Gila woodpecker and gilded flicker are both California-listed as endangered. In California, these birds are found at a few scattered locations in the Colorado River Valley. Both the Gila woodpecker and the gilded flicker inhabit areas of desert riparian, mesquite, saguaro, or Joshua tree woodlands. Gila woodpeckers may sometimes be found in trees, palms, and even wooden utility poles in urban and suburban areas. NBP reported that, based on a preliminary evaluation, potential habitat for the Gila woodpecker and the gilded flicker occurs along the pipeline route at MPs 22.0 to 23.0, MPs 35.0 to 36.0, MPs 41.0 to 46.0, MPs 50.0 to 53.0, and MPs 59.0 to 66.0. Potential habitat for the Gila woodpecker also occurs along the pipeline route at MPs 0.0 to 12.0. During burrowing owl surveys conducted between January and April 2001 (see section 4.7.3), biologists looked for other special status species as well. No Gila woodpeckers or gilded flickers were observed in the project area (Konecny Biological Services, 2001).

Western Yellow-billed Cuckoo

The western yellow-billed cuckoo is California-listed as endangered. This bird is an uncommon to rare summer resident of valley foothill and desert riparian habitats in scattered locations in California. Although this species was formerly much more common and widespread throughout lowland California, its numbers have been drastically reduced by habitat loss. Western yellow-billed cuckoos are most frequently found along perennial streams, wetlands, and other riparian areas with cottonwood and willow (*Salix* sp.) and an understory of mesquite, salt cedar, and *Typha* marshes. In the project area, suitable habitat for the western yellow-billed cuckoo has been found in the Davis Lake area (MPs 31.0 to 33.0). To assess whether the western yellow-billed cuckoo occupies this area, biologists will follow current survey protocols and visit areas of potential habitats on three separate occasions during the summer of 2001.

4.7.3 Other Special Status Species

Based on consultations with the FWS, the BLM, the ADGF, and the CDFG, and a search of the California Natural Diversity Database, 39 special status species not federally or state-listed or proposed listed endangered or threatened (*i.e.*, California-listed as rare, Federal/state species of special concern, Arizona wildlife of special concern, CNPS listed species, BLM sensitive species, species protected by the Migratory Bird Treaty Act) were identified as potentially occurring in the project area. Based on habitat evaluations and species-specific surveys, 21 of these 39 species could potentially be affected by the project. These species are discussed below.

Bats

Five bat species are known to occur in the general vicinity of the North Baja Pipeline Project. These species, the California leaf-nosed bat, cave myotis, pale big-eared bat, pallid bat, and western mastiff bat, are all California species of special concern and BLM sensitive species. All of these bats are insectivorous and could be found foraging throughout much of the project area, including areas of lowland desert and irrigated fields. These bats roost singly or in large groups in caves or mines, under bridges, and in rock crevices. The pallid bat may roost in hollow trees.

Nelson's Bighorn Sheep

The Nelson's bighorn sheep is a BLM sensitive species. Usually occurring in small herds of about 10 animals, Nelson's bighorn sheep are primarily found in open, rocky, steep areas with available water and herbaceous forage. In the general vicinity of the project, Nelson's bighorn sheep subpopulations (demes)

are associated with the Palo Verde, Chocolate, and Cargo Muchacho Mountains (BLM and CDFG, 2001). Habitats generally occupied by Nelson's bighorn sheep are not crossed by the pipeline route.

Black-tailed Gnatcatcher and Cliff Swallow

The black-tailed gnatcatcher and the cliff swallow are two species specifically identified during consultations with resource agencies as potentially occurring in the project area. Although neither of these species is listed as endangered, threatened, or special concern, both of these birds are protected under the Migratory Bird Treaty Act (as are the other migratory birds potentially found in the project area). The black-tailed gnatcatcher occurs commonly in desert wash woodlands in the project area, particularly at those sites with dense palo verde, ironwood, or acacia. The cliff swallow is a common to abundant spring migrant found throughout California in open habitats such as meadows, grasslands, shrublands, pastures, croplands, or areas with open bodies of water. Cliff swallows make nests of mud pellets that are often attached to structures such as eaves of houses, barns, other buildings, bridges, or other sheltered vertical surfaces. During biological surveys of the pipeline route, NBP noted the presence of high quality cliff swallow nesting habitat near the pipeline route in areas with canals and drains in the agricultural areas of Blythe and Palo Verde.

Burrowing Owl

The burrowing owl is a California species of special concern and a BLM sensitive species. Found throughout much of the western United States, this bird inhabits open, dry grasslands, deserts, agricultural areas, and scrublands characterized by low growing vegetation. Burrowing owls are subterranean nesters, typically found using burrows made by small mammals such as ground squirrels or badgers. In the project area, concentrations of burrowing owls are most likely associated with agricultural drainage ditches (BLM and CDFG, 2001). A preliminary habitat evaluation of the project area identified suitable burrowing owl habitat in agricultural areas and along canals and drains crossed by the pipeline route at MPs 0.0 to 12.0, MPs 22.0 to 26.0, MPs 31.0 to 33.0, and MPs 79.0 to 79.8. A more refined habitat evaluation conducted between January and April 2001 identified about 25.1 acres of burrowing owl habitat that would be disturbed by construction. Biologists identified two active burrows in irrigation canals adjacent to agricultural fields at MP 10.5 and two active burrows near I-8 at MP 75.3 (Foster Wheeler Environmental Corporation, 2001b).

Crissal Thrasher

The Crissal thrasher is a species of special concern in California. Shy and intolerant of human disturbance, this bird occurs throughout appropriate habitats in the southwestern United States. In California, it occurs throughout the southeastern deserts but is most common along the lower Colorado River. This species is found in brushy thickets or dense understories of desert riparian and desert wash habitats. Loose soils (not too firm or sandy) suitable for digging up insect prey may be a strong habitat indicator (BLM and CDFG, 2001). In the project area, potential habitat for this species was initially identified near the Colorado River, the towns of Blythe and Palo Verde, and Davis Lake (MPs 0.0 to 3.0, MPs 24.0 to 29.0, and MPs 31.0 to 33.0). During March and April 2001, NBP refined its habitat evaluation for this species and attempted to collect direct observations of the presence of the species along the pipeline route. One individual was observed near the pipeline route along 18th Avenue in Blythe. The refined habitat evaluation identified 11.2 acres of suitable habitat that would be disturbed by construction. These areas were specifically characterized because of the presence of plants such as mesquite, ironwood, catclaw, acacia, arrow weed, and willows (*Salix* sp.), which are features of desert riparian and desert wash habitats particularly favored by this species.

Great Egret

The great egret is listed in Arizona as a Wildlife of Special Concern. Great egrets are found throughout much of the United States and Mexico in areas with coastal lagoons, tidal saltwater marshes, mudflats, bays, estuaries, margins of large rivers and lakes, freshwater marshes, irrigation canals, and flooded fields. This species roosts and nests communally in large trees in areas isolated from frequent human disturbances. During burrowing owl surveys conducted between January and April 2001, biologists looked for other special status species as well, including the great egret. Although no roost or nest sites were located in the vicinity of the pipeline route, great egrets could feed or rest in suitable habitats in the project area (MPs 0.0 to 12.0, MPs 22.0 to 26.0, MPs 31.0 to 33.0, and MPs 79.0 to 79.8). No great egrets were observed in the project area (Konecny Biological Services, 2001).

LeConte's Thrasher

The LeConte's thrasher is a California species of special concern and a BLM sensitive species. LeConte's thrashers live mainly in the lowest, most barren, and hottest desert plains of southwestern and western Arizona and southeastern California. This species occupies desert scrub, open washes, and Joshua tree habitats. These habitats are found throughout much of the project area (MPs 12.0 to 79.8). During March and April 2001, NBP refined its habitat evaluation for this species and attempted to collect direct observations of the presence of the species along the pipeline route. Although LeConte's thrashers were not seen or heard during these surveys, the refined habitat evaluation identified 662.3 acres of suitable habitat that would be disturbed by construction. These areas were specifically characterized because of the presence of dense spiny shrubs or branched cactus, which are features of desert wash and creosote desert scrub habitats particularly favored by this species.

Sonoran Yellow Warbler

The Sonoran yellow warbler is a species of special concern in California that occurs in areas of suitable habitat throughout much of California, including areas along the Colorado River and in the Imperial Valley. Sonoran yellow warblers inhabit riparian deciduous habitat, typically cottonwoods with an understory of willow (*Salix* sp.), mesquite, tamarisk, and *Typha*. In the project area, suitable habitat for the Sonoran yellow warbler is found along the lower Colorado River in the Blythe, Palo Verde, and Davis Lake areas (MPs 0.0 to 3.0, MPs 22.0 to 23.0, and MPs 31.0 to 33.0).

Vermilion Flycatcher

The vermilion flycatcher is a species of special concern in California. This species is a common and widespread breeder along the lower Colorado River, and in the Coachella and Imperial Valleys. Vermilion flycatchers occur in desert riparian habitat adjacent to irrigated fields, irrigation ditches, pastures, and other open mesic sites. In the project area, suitable habitat for the vermilion flycatcher occurs in desert riparian areas along the lower Colorado River basin (MPs 0.0 to 12.0, MPs 22.0 to 29.0, MPs 31.0 to 33.0, MPs 35.0 to 53.0, MPs 59.0 to 66.0, and MPs 79.0 to 79.8).

Couch's Spadefoot Toad

The Couch's spadefoot toad is a California species of special concern. In Arizona and California, this species can be found in a variety of vegetation types, including desert dry wash woodland, creosote bush scrub, and alkali sink scrub. Adapted to an arid environment, the Couch's spadefoot toad spends up to 11 months a year in underground burrows surviving off stored fat reserves. During wet conditions, spadefoot

toads breed in temporary rain pools or temporary overflow areas. NBP did not conduct habitat evaluations or focused surveys for this species; however, the CDFG indicated that a population of this species is historically known to occur along one of the dry washes crossed by the project.

Colorado Desert Fringe-toed Lizard, Flat-tailed Horned Lizard, and Mojave Fringe-toed Lizard

The Colorado Desert fringe-toed lizard, flat-tailed horned lizard, and Mojave fringe-toed lizard are all California species of special concern and BLM sensitive species. The range of the Colorado Desert fringe-toed lizard and flat-tailed horned lizard includes the Salton Sea and the Imperial Sand Hills of California as well as the low deserts of southwestern Arizona, northern Baja, and northwestern Sonora. The Mojave fringe-toed lizard is found only in California and a small area of western Arizona, where it is restricted to dune habitats in the deserts of Los Angeles, Riverside, and San Bernardino Counties in California and La Paz County in Arizona. The flat-tailed horned lizard is probably most abundant in areas of creosote bush, but is found in desert scrub, wash, succulent shrub, and alkali scrub habitats. Vegetation is usually scant, consisting of creosote bush or other scrubby growth. The Colorado Desert fringe-toed lizard and Mojave fringe-toed lizard are restricted to the fine, loose, windblown sand of dunes, flats, riverbanks, and washes in some of the most arid parts of the desert. The present range of these species, and abundance in that range, has been greatly reduced over recent years by human activities such as development and recreational use of prime habitat.

In the project area, suitable habitat for the Colorado Desert fringe-toed lizard and the flat-tailed horned lizard is found from Ogilby extending south to the All American Canal (MPs 71.0 to 79.8). To further refine the potential occurrence of these species in the project area, NBP biologists conducted additional surveys in March 2001 and categorized habitats between MPs 71.0 and 79.8 as either favorable (0.4 mile), transitional (4.1 miles), or unfavorable (4.3 miles) according to the *Flat-tailed Horned Lizard Range Management Strategy* (Foreman, 1997). Flat-tailed horned lizards were observed between MPs 77.0 and 78.0 during surveys in 2000 and 2001. The Mojave fringe-toed lizard potentially occurs in areas of suitable habitat crossed by the pipeline route on the Palo Verde Mesa between MPs 11.6 and 22.0 (BLM and CDFG, 2001).

Desert Unicorn-plant

The desert unicorn-plant has been listed as a "category 4" species by the CNPS (plants that are limited in distribution or are infrequent throughout a broader area in California). This species is found in Sonoran Desert scrub vegetation communities and often occurs on deep, alluvial sands (Skinner and Pavlik, 1994). In the project area, botanists identified 5 desert unicorn-plants along the pipeline route in desert wash woodland and sandy substrate creosote bush scrub habitats from MPs 23.4 to 32.1; about 61 plants were found at several locations in areas of deep sand substrate within creosote bush scrub habitat from MPs 75.0 to 78.8 (Foster Wheeler Environmental Corporation, 2001c).

Fairyduster

The fairyduster has been listed as a "category 2" species by the CNPS (rare throughout all or portions of its range in California, but common beyond the boundaries of California). This species is a deciduous shrub known to occur in Imperial and San Diego Counties in California (Skinner and Pavlik, 1994). The fairyduster is found in Sonoran desert scrub, creosote bush scrub, desert dry wash woodland, and along desert washes (Skinner and Pavlik, 1994). Botanists that surveyed the pipeline route identified 2,330 individual fairyduster plants from a series of locations at MPs 45.1 to 49.8, MPs 53.6 to 57.4, and MPs 65.1 to 66.6 (Foster Wheeler Environmental Corporation, 2001c). The number of individuals at a particular location ranged from 1 to 100.

Spiny Abrojo

The spiny abrojo has been listed as a "category 4" species by the CNPS (plants that are limited in distribution or are infrequent throughout a broader area in California). The spiny abrojo is a thorny shrub that is found in Sonoran Desert scrub habitats (Skinner and Pavlik, 1994). In the project area, botanists located 10 individuals of this species within desert wash woodland communities between MPs 45.1 and 46.5 (Foster Wheeler Environmental Corporation, 2001c).

4.8 LAND USE, TRANSPORTATION, SPECIAL MANAGEMENT AREAS, RECREATION AND PUBLIC INTEREST AREAS, AND VISUAL RESOURCES

4.8.1 Land Use

Pipeline Facilities

The North Baja Pipeline Project includes a total of 79.9 miles of new 30- and 36-inch-diameter pipeline in La Paz County, Arizona and Riverside and Imperial Counties, California. NBP proposes to install the majority of its pipeline using an 80-foot-wide construction right-of-way, of which 50 feet would be retained as permanent right-of-way. Between MPs 2.9 and 10.4, where the pipeline would be within or adjacent to the paved portion of 18th Avenue, NBP would use a 60-foot-wide construction right-of-way, of which 5 feet would be retained as permanent right-of-way.

Approximately 50.1 miles (63 percent) of the proposed pipeline would be constructed in or adjacent to various existing rights-of-way, including those areas within a designated utility corridor. Another 14.2 miles (18 percent) of the proposed pipeline would be within a designated utility corridor but not in or adjacent to existing rights-of-way. The remaining 15.6 miles (19 percent) of the proposed pipeline would be constructed on newly created right-of-way that does not parallel existing rights-of-way and is not within a designated utility corridor.

Table 4.8.1-1 shows the current land uses that would be crossed by the proposed pipeline. The predominant land use that would be crossed is open land (desert), comprising 68.35 miles of the pipeline route (85 percent). Other land uses that would be crossed by the pipeline include 9.1 miles (11 percent) of transportation corridor, 2.2 miles (3 percent) of agricultural land, and 0.25 mile (< 1 percent) of open water. The portion of the route within the 18th Avenue easement (*i.e.*, within or adjacent to the road) is included in the transportation category; however, the land adjacent to 18th Avenue is a mix of rural residential and agricultural land (see section 4.8.2).

Temporary extra workspace would be required for construction at waterbody, road, and railroad crossings, as well as at directional drill work sites, steep side slopes, and near the beginning and end of the mainline construction spread. A total of 48.9 acres of land would be disturbed by temporary extra workspace (see table C-1 in appendix C). Of this total, 34.9 acres are agricultural land and 14.0 acres are open land (desert). NBP would use 37 temporary access roads. These roads would disturb 89.5 acres of open land (desert) (see table C-2 in appendix C). In addition to the temporary extra workspace discussed above, NBP would temporarily use 50.4 acres of land for contractor yards comprising 15.2 acres of industrial/commercial land for the 18th Avenue Yard, 30.2 acres of industrial/commercial land for the Ripley Yard, and 5 acres of open land (desert) for the Ogilby Yard.

TABLE 4.8.1-1						
Land Uses Crossed by the North Baja Pipeline Route <u>a/</u>						
Facility / Milepost	County, State	Open Land (Desert) <u>b/</u>	Transportation <u>c/</u>	Agricultural <u>d/</u>	Open Water <u>e/</u>	Total Miles
Interconnect Pipeline <u>f/</u>	La Paz, Arizona	0.1	0.0	0.0	0.0	0.1
Mainline Pipeline						
0.0 - 0.2	La Paz, Arizona	0.05	0.0	0.1	0.05	0.2
0.2 - 22.3	Riverside, California	10.8	9.1	2.1	0.1	22.1
22.3 - 79.8	Imperial, California	57.4	0.0	0.0	0.1	57.5
Project Total		68.35 (85%)	9.1 (11%)	2.2 (3%)	0.25 (<1%)	79.9 (100%)
<u>a/</u> Measured in miles. <u>b/</u> Open land (desert) consists of undeveloped, desert scrub-shrub lands and wetlands. <u>c/</u> Transportation includes the installation of the proposed pipeline within the 18 th Avenue easement (paved and unpaved portions). <u>d/</u> Agricultural land includes cropland typically comprising alfalfa, wheat, cotton, and irrigated pasture, and to a lesser extent, melons, lettuce, and broccoli. <u>e/</u> Open water includes the crossing of open expanses of water such as the Colorado River and the All American Canal. <u>f/</u> The interconnect pipeline between the tie-in with El Paso and the Ehrenberg Compressor Station is not mileposted.						

Table 4.8.1-2 summarizes the land ownership along the pipeline route. Approximately 72 percent of the pipeline route would be on public lands managed by the BLM (60 percent/48.2 miles), California counties (10 percent/8.2 miles), CSLC (1 percent/0.5 mile), or the States of Arizona and California (1 percent/0.4 mile).

TABLE 4.8.1-2						
Summary of Land Ownership Along the North Baja Pipeline Route <u>a/</u>						
County, State	BLM <u>b/</u>	Private	County	CSLC	Other State	Total Miles
La Paz County, Arizona	0.0	0.2	0.0	0.0	0.1	0.3
Riverside County, California	6.7	7.9	7.5	0.0	0.0	22.1
Imperial County, California	41.5	14.5	0.7	0.5	0.3 (State Hwy 78)	57.5
Project Total	48.2 (60%)	22.6 (28%)	8.2 (10%)	0.5 (1%)	0.4 (1%)	79.9 (100%)
<u>a/</u> Measured in miles. <u>b/</u> Includes lands administered by the BLM but released to the BOR.						

Aboveground Facilities

NBP proposes to construct one new compressor station, two meter stations, pig launcher/receiver facilities, and seven MLVs as part of the North Baja Pipeline Project. Table 4.8.1-3 summarizes the land requirements and land use for the proposed aboveground facilities.

TABLE 4.8.1-3 Aboveground Facility Land Requirements and Land Use				
Facility	Milepost	County, State	Land Affected During Construction and Operation (acres)	Existing Land Use
Compressor Station				
Ehrenberg Compressor Station	0.0	La Paz, Arizona	12.4	Agricultural
Meter Stations				
Ehrenberg <u>a/</u>	0.0	La Paz, Arizona	0.0	Agricultural
Ogilby	75.2	Imperial, California	0.9	Open Land (desert)
Pig Launcher/Receivers				
36-inch-diameter pig launcher <u>a/</u>	0.0	La Paz, Arizona	0.0	Agricultural
Rannells Trap (launcher/receiver)	11.7	Riverside, California	0.3	Open Land (desert)
30-inch-diameter pig receiver <u>b/</u>	75.2	Imperial, California	0.0	Open Land (desert)
Mainline Valves (MLVS)				
MLV #1 <u>a/</u>	0.0	La Paz, Arizona	0.0	Agricultural
MLV #2 <u>c/</u>	5.7	Riverside, California	0.0	Industrial/Commercial
MLV #3 <u>d/</u>	11.7	Riverside California	0.0	Open Land (desert)
MLV #4 <u>c/</u>	28.0	Imperial, California	0.0	Open Land (desert)
MLV #5 <u>c/</u>	41.6	Imperial, California	0.0	Open Land (desert)
MLV #6 <u>c/</u>	60.3	Imperial, California	0.0	Open Land (desert)
MLV #7 <u>b/</u>	75.2	Imperial, California	0.0	Open Land (desert)
Total			13.6	
<u>a/</u> Located at the Ehrenberg Compressor Station site.				
<u>b/</u> Located at the Ogilby Meter Station.				
<u>c/</u> MLV would be located within the permanent right-of-way and would not require any additional land.				
<u>d/</u> Located at the Rannells Trap.				

The proposed Ehrenberg Compressor Station, Ehrenberg Meter Station, a 36-inch-diameter pig launcher, and a MLV would be located on an 80-acre parcel of agricultural land at MP 0.0. About 12.4 acres of the 80-acre parcel would be permanently converted to an industrial/commercial use for construction and operation of the facility. NBP would lease the remaining 67.6 acres for agricultural purposes.

The Rannells Trap at MP 11.7, which includes a 36-inch-diameter pig receiver/30-inch-diameter pig launcher facility and a MLV, would convert an area approximately 100 by 150 feet (0.3 acre) of open land (desert) to an industrial/commercial use.

The Ogilby Meter Station, a 30-inch-diameter pig receiver, and a MLV at MP 75.2 would require 0.9 acre of open land (desert) administered by the BLM that would be converted to an industrial/commercial use.

The four MLVs at MPs 5.7, 28.0, 41.6, and 60.3, respectively, would each require an area approximately 50 feet by 50 feet within the permanent right-of-way. The land use at the MLV at MP 5.7 is industrial/commercial. The land use at the MLVs at MPs 28.0, 41.6, and 60.3 is open land (desert).

4.8.2 Existing and Planned Residential Areas

Although no residential land is directly crossed by the proposed pipeline route, the adjacent land use along 18th Avenue is a mix of rural residential and agricultural land. A total of 25 residences and businesses have been identified adjacent to 18th Avenue and use 18th Avenue for access to their properties. Eighteen of these residences and two businesses would be located within 100 feet of the edge of the construction right-of-way or temporary extra workspaces (construction work area); the two businesses and four of the residences would be located within 50 feet of the construction work area. Table 4.8.2-1 lists the residences and businesses near the route by milepost and indicates the distance and orientation of each from the edge of the proposed construction work area.

No existing permanent residences would be located near the aboveground facilities and no planned residential or commercial developments were identified near the proposed pipeline or aboveground facilities.

4.8.3 Transportation

The proposed pipeline route crosses or is adjacent to several linear transportation and utility rights-of-way including highways, roads, railroad tracks, canals, and power lines. Major highways such as state routes or interstates would be crossed at seven locations. Several county and local roads would also be crossed. Table 4.8.3-1 lists the major roads that would be crossed by the proposed project. In addition to the roads crossed, approximately 33 miles of the proposed pipeline route would be located adjacent to roadways.

Pipe and other construction materials would be transported into the project area by rail to a designated rail yard located near Ripley, California or to the proposed contractor yard on 18th Avenue. Construction vehicles would load equipment and materials at the yards and transport them to the construction right-of-way using surfaced streets and approved access roads. Pipe in lengths of 40 to 80 feet would be hauled from the yards by truck trailers during the daylight hours for an approximately 12- to 16-week period. It is estimated that during this period 25 to 40 truck loads of pipe would travel between the yards and the pipeline route each day.

TABLE 4.8.2-1

Residences and Businesses Adjacent to the North Baja Pipeline Project

Milepost	Residence/Business	Distance from Edge of Construction Work Area (feet)	Orientation from the Construction Work Area
La Paz County, Arizona			
—	—	—	—
Riverside County, California ^{a/}			
2.92	Residence	6	North
3.30	Residence	51	South
3.62	Residence	19	South
3.64	Residence	75	South
3.72	Residence	86	North
3.75	Residence	62	North
3.77	Residence	83	North
3.84	Residence	72	North
3.91	Residence	250	North
3.92	Residence	60	South
4.11	Residence	120	South
4.23	Business	49	North
4.42	Residence	91	North
4.64	Residence	40	North
4.93	Residence	76	South
5.25	Business	49	North
5.72	Residence	84	South
6.10	Residence	110	North
6.38	Residence	52	North
7.66	Residence	105	South
7.91	Residence	54	North
8.20	Residence	43	North
8.66	Residence	71	South
9.20	Residence	160	South
9.96	Residence	92	North
Imperial County, California			
—	—	—	—
Total	25		

^{a/} All residences/businesses listed in Riverside County are accessed via 18th Avenue.

TABLE 4.8.3-1	
Major Roads Crossed by the North Baja Pipeline Project	
Milepost	Road Name
La Paz County, Arizona	
--	--
Riverside County, California	
3.4	Intake Blvd.
4.4	C & D Blvd.
4.9	South Broadway
5.4	Lovekin Blvd.
6.4	De Frain Blvd.
7.4	Arrowhead Blvd.
8.4	Neighbors Blvd. (State Route (SR) 78)
9.5	Stephenson Blvd.
10.4	Keim Blvd.
Imperial County, California	
28.2	SR 78
29.5	SR 78
31.6	SR 78
35.3	SR 78
40.0	Blythe-Ogilby Rd.
41.1	Blythe-Ogilby Rd.
48.0	SR 78
54.9	Ogilby Rd. (County Highway S34)
66.5	Golden Rock Ranch Rd.
74.6	Ogilby Rd. (County Highway S34)
75.3	Interstate 8

Major roadways potentially affected by construction and operation of the North Baja Pipeline Project include 18th Avenue, SR 78, Ogilby Road, and I-8.

Between MPs 2.9 and 10.4, 18th Avenue is a paved two-lane Riverside County road. In this segment, the pipeline would be installed beneath or adjacent to the pavement of the road and would cross nine other roads and one railroad. According to traffic counts, traffic along 18th Avenue averages 636 vehicles per day. Additionally, all of the residences and businesses along the road use 18th Avenue for access to their properties.

SR 78 is a two-lane state-maintained facility with wide shoulders. The proposed pipeline would cross SR 78 in six locations. The pipeline would also parallel SR 78 for several miles but it would not be located within the road right-of-way except at the six crossings. The average daily traffic (ADT) vehicle counts for SR 78 in the proposed project area range from 1,500 to 2,700.

Ogilby Road is a two-lane county roadway that connects SR 78 to I-8. The proposed pipeline would cross Ogilby Road twice and would also parallel the road for several miles. ADT vehicle counts range from 540 to 700 in this segment of Ogilby Road.

I-8 is a major east/west freeway crossing southern Arizona and California. The proposed pipeline would cross I-8 at MP 75.3 near where I-8 intersects with Ogilby Road. The 1999 ADT on I-8 was approximately 11,000 vehicles at this location.

4.8.4 Special Management Areas

4.8.4.1 California Desert Conservation Area

Approximately 64.9 miles (81 percent) of the pipeline route in California are within the CDCA (MPs 3.4 to 22.3 and MPs 33.8 to 79.8). Pursuant to the FLPMA, the BLM prepared a comprehensive land use management plan for the area (the CDCA Plan) in 1980. The intent of the CDCA Plan is to "...provide for the immediate and future protection and administration of the public lands in the California Desert within the framework of a program of multiple use and sustained yield, and the maintenance of environmental quality." (BLM, 1980). Figure 4.8.4-1 shows the location of the CDCA boundary in relation to BLM land and the proposed pipeline route.

About 42.2 miles of the pipeline route within the CDCA are managed by the BLM (see figure 4.8.4-1). All of the public lands within the CDCA under BLM management have been designated geographically into four multiple-use classes (BLM, 1980): Controlled Use ("C"), Limited Use ("L"), Moderate Use ("M"), and Intensive Use ("I"). Along the pipeline route only multiple-use classes "L" (12.5 miles) and "M" (29.7 miles) would be crossed. The CDCA Plan stipulates that new gas transmission facilities located in multiple-use classes "L" and "M" lands may be allowed only within designated corridors.

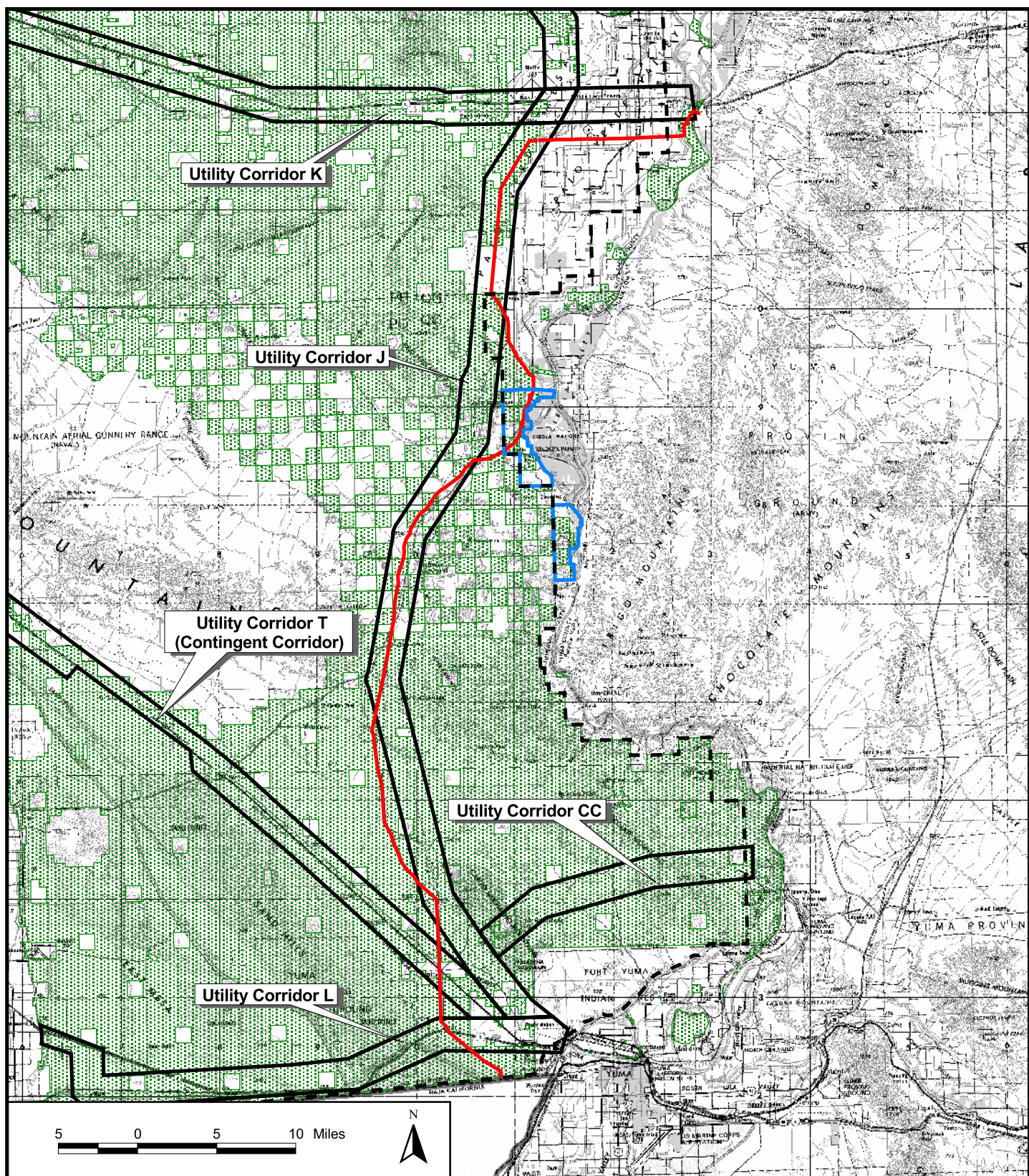
Under the Energy Production and Utility Corridors Element of the CDCA Plan, 16 planning corridors were identified to address utility facilities, including all pipelines with diameters greater than 12 inches (BLM, 1980). Eight additional corridors are currently identified as contingent corridors^{1/}. Approximately 34.8 miles of the proposed route within the CDCA would be located within designated Utility Corridors J and L, of which 22.4 miles are managed by the BLM (see figure 4.8.4-1).

Utility Corridor J is a 2-mile-wide corridor that runs north-south through the southeastern portion of California. The proposed route is located within Utility Corridor J between MPs 11.1 and 22.3, MPs 36.0 and 53.6, and MPs 65.0 and 68.0. Between MPs 74.3 and 77.3 the proposed route crosses Utility Corridor L, which is an east-west running corridor along I-8.

All other portions of the route within the CDCA are outside a designated utility corridor. The portions of the route that are on lands within the CDCA and managed by the BLM but outside a designated utility corridor (approximately 19.8 miles) are in conflict with the CDCA Plan and would require an amendment to the plan. In addition, NBP has indicated that one new permanent access road would be constructed at MP 60.2, which is outside of a designated utility corridor. This 0.02-mile-long road would conflict with the CDCA Plan and would also require an amendment to the plan.

^{1/}

Nine were identified in the original CDCA Plan but one was deleted through a 1988 plan amendment.



LEGEND


-  Proposed Route
-  CDCA Boundary
-  Utility Corridor
-  BLM Land
-  Milpitas Wash SMA

Figure 4.8.4-1
North Baja Pipeline Project
 Location of Special Management Areas in Relation to
 BLM Land and the Proposed Pipeline Route

Although 19.8 miles of the route on BLM lands are in conflict with the CDCA Plan because they are outside of a designated utility corridor, approximately 1.5 miles of the 19.8 miles are within a contingent utility corridor. Between MPs 69.7 and 72.5 the proposed route bisects Utility Corridor T, which runs in a general northwest to southeast direction adjacent to the Southern Pacific Railroad (see figure 4.8.4-1). The CDCA Plan identifies this corridor as a contingent utility corridor having some potential for use in the future should project status associated with the proposed 16 corridors change (BLM, 1980). A contingent utility corridor is not an officially designated utility corridor until a plan amendment for the use of the corridor is approved. While this portion of the proposed route would still require a plan amendment, it would be located within a utility corridor that has been identified for future potential use.

Within the CDCA, the pipeline route crosses the Milpitas Wash WHA between MPs 33.8 and 52.0. In addition to the CDCA Plan, this area is managed by the Milpitas Wash WHMP. The primary emphasis of the WHMP is the management of the Milpitas Wash WHA on an ecosystem basis (BLM, 1986). One of the main objectives of the WHMP is the consolidation, protection, and enhancement of wildlife habitat and habitat for plants of special management concern. Of the 18.2 miles crossed by the pipeline route, 9.1 miles are managed by the BLM. The majority of this portion of the route is within Utility Corridor J (8.2 miles). Approximately 0.9 mile is outside of a designated utility corridor and is included in the 19.8 miles of the proposed route requiring a CDCA Plan Amendment.

4.8.4.2 Milpitas Wash Special Management Area

The pipeline route crosses the Milpitas Wash SMA between MPs 29.2 to 33.8 (see figure 4.8.4-1). The Milpitas Wash SMA is managed by the BLM Yuma Field Office under the Yuma District Plan. The purpose of the Yuma District Plan is to provide a comprehensive framework for managing public land and resources in the Yuma District. The Yuma District Plan adopted the preferred alternative analyzed during an EIS process addressing six major issues and concerns identified by the public, other agencies, and BLM staff. The six issues included wildlife habitat, special management areas, grazing, land ownership adjustment, rights-of-way, and recreation. The theme of the preferred alternative adopted by the Yuma District Plan is to "balance competing demands by providing for development of needed resources while protecting important and sensitive environmental values." (BLM, 1985). As part of the Yuma District Plan, several areas were identified to be managed under special management prescriptions, including the Milpitas Wash SMA. The Milpitas Wash SMA was designated for its natural values, which include undisturbed desert vegetation, wildlife habitat, and cultural resources.

Of the approximately 4.6 miles crossed by the pipeline route within the Milpitas Wash SMA, 3.3 miles are managed by the BLM. These 3.3 miles would require an amendment to the Yuma District Plan.

4.8.5 Recreation and Public Interest Areas

The proposed pipeline route does not cross any hazardous waste sites, national or state forests, golf courses, registered national natural landmarks, lands designated under a Habitat Conservation Plan, or areas designated under the National or California Wild and Scenic Rivers System or National Trails System. However, the proposed route does cross three areas of recreational or special use and is adjacent to several others.

The proposed pipeline route crosses the Colorado River at MP 0.2. The Colorado River is an area of high recreational use, including boating and fishing. The proposed Ehrenberg Compressor Station would be located approximately 0.1 mile east of the Colorado River. An unpaved access road to the Colorado River parallels the southern boundary of the compressor station site.

At MP 18.3 the pipeline route crosses the Bradshaw Trail. The Bradshaw Trail is a BLM-designated National Back County Byway. National Back County Byways are a network of roads designated by the BLM as crossing relatively pristine, high scenic quality areas (Kalish, 2001). Between 1862 and 1877, the trail was used to transport equipment and supplies from San Francisco to the gold mines of La Paz (now Ehrenberg), Arizona. The trail was also used as a stagecoach route and was the first road through Riverside County. The remaining 65-mile-long section of the trail extends from the North Shore area near the Salton Sea to Palo Verde. The Bradshaw Trail is periodically graded by the Riverside County Transportation Department. The land at the location of the proposed pipeline crossing is managed by the BLM.

The pipeline route also crosses a rock quarry operated by the BOR between MPs 29.2 and 29.6. The quarry is used by the BOR on an as-needed basis for material to be used as riprap for bank erosion repair along the Colorado River (Romines, 2001).

The pipeline route is adjacent to, but does not cross, the Cibola NWR between MPs 29.5 and 33.0. At its closest point, the pipeline is 0.1 mile west of the refuge boundary. The refuge was established in 1964 to protect the wintering grounds for migratory birds and other wildlife.

The pipeline route is within 1 mile of two BLM-designated ACECs. The Mule Mountains ACEC is located approximately 0.85 mile west of the proposed pipeline at MP 15.7. The Pilot Knob ACEC is located approximately 0.95 mile east of the proposed pipeline at MP 79.6. The FLPMA defines an ACEC as an area within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. According to the CDCA Plan, the ACEC designation is a process for determining what special management certain important environmental resources or hazards require. The management objective of both the ACECs located in the project area is to protect cultural resources.

The Palo Verde Mountains Wilderness Area is located less than 1 mile west of the pipeline route between MPs 26.0 and 33.0. The 1964 Wilderness Act defined wilderness as areas in generally natural condition; areas having outstanding opportunities for solitude or a primitive and unconfined type of recreation; areas at least 5,000 acres or large enough to preserve use as wilderness; and areas containing ecological, geological, or other features of scientific, scenic, or historical value. The Palo Verde Mountains Wilderness Area is a 32,310-acre area designated as part of the California Desert Protection Act of 1994. Distinguishing this wilderness area are twin buttes known as the Flat Tops, which stand out as a landmark against a range of jagged peaks. According to the 1964 Wilderness Act, there shall be no commercial enterprise, no permanent road (except as necessary to meet minimum requirements for the administration of the area), no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

OHV use in the project area is variable in terms of both season and location. OHV use occurs most frequently during the winter months with the heaviest use occurring on the weekends. The Ehrenberg Sandbowl OHV Area is located 1 mile southeast of the proposed Ehrenberg Compressor Station site. Further south, approximately 0.1 mile west of the pipeline near its terminus, the Imperial Sand Dunes provide a large area of OHV use. In addition, OHV use is common but restricted on BLM lands outside of these areas along the proposed route. BLM land within the CDCA is designated open, closed, or limited for vehicle use. Route designations are generally made on the basis of multiple use-classes. Multiple-use classes M (approximately 29.7 miles of the proposed route) and L (approximately 12.5 miles of the proposed route) fall under the limited vehicle use designation. Limited vehicle access means that motorized-vehicle access is allowed only

on certain routes of travel, which include roads, ways, trails, and washes (BLM, 1980). At a minimum, use is restricted to existing routes of travel. An existing route of travel is a route that was established before approval of the CDCA Plan in 1980 with a minimum width of 2 feet, showing significant surface evidence of prior vehicle use or, for washes, history of prior use. On class M lands access is allowed on existing routes unless it is determined that use on specific routes must be limited further. On class L lands vehicle access is directed toward use of approved routes of travel due to higher levels of resource sensitivity in this multiple-use class.

Camping is another variable recreational activity in the project area with most of the activity occurring in the winter. The area surrounding the Ogilby Meter Station, in particular, is a popular camp site throughout the winter months.

4.8.6 Visual Resources

The BLM uses a Visual Resource Management (VRM) system to identify and manage scenic values on public lands. The VRM system includes a visual resource inventory, which classifies resources on BLM land in one of four categories: class I, II, III, or IV. Within the project area, the BLM land in Imperial County has been categorized into VRM classes. BLM land along the proposed route in Riverside County has not been classified. Accordingly, interim VRM classes have been established by the BLM for the area crossed by the pipeline route in Riverside County.

Of the 48.2 miles of BLM-managed lands crossed by the project, the proposed pipeline route crosses 21.8 miles in VRM class II, 18.9 miles in VRM class III, and 7.5 miles in VRM class IV. The degree of modification allowed to the basic elements of the landscape in these classes includes:

- class II: modifications should not be evident in the landscape. Contrasts are seen, but should not attract attention to the casual observer;
- class III: modifications are evident, but should remain subordinate to the existing landscape; and
- class IV: modifications may dominate the view and be the focus of viewer attention, every effort should be made to minimize the impact of these activities.

Pipeline Facilities

The landscape along the North Baja pipeline route is characterized by flat agricultural and rural residential areas, playa/alluvial fan landscapes (*i.e.*, flat terrain, creosote scrub vegetation, desert washes), and mountain foothills. Specific segments of the pipeline route fall into one of these general categories as described below.

MPs 0.0 to 11.7

This portion of the proposed route comprises flat terrain with a mix of agricultural and rural residential landscapes on both sides of 18th Avenue. Lands within this route segment in the CDCA are not managed by the BLM and do not have a VRM classification.

MPs 11.7 to 29.7 and MPs 31.5 to 79.8

Past 18th Avenue, the route joins the WAPA transmission line corridor and continues south across the Palo Verde Mesa to the Palo Verde Mountains foothills. The area crossed has an interim VRM classification of IV. South of the Palo Verde Mountains, the surroundings of the corridor assume characteristics typical of playa/alluvial fan landscapes until the route reaches the intersection of Ogilby Road and I-8. At that point the route heads southeast through the Pilot Knob Mesa to the United States/Mexico border, adjacent to the sand dune system that dominates the surrounding visual setting and contributes to a moderate to high landscape quality. Lands within these route segments managed by the BLM within the CDCA have VRM classifications of II, III, and IV.

MPs 29.7 to 31.5

In this segment, the proposed pipeline route crosses the foothills of the Palo Verde Mountains. The mountains form a distinctive backdrop with numerous rock outcroppings. Blasting would likely be required to install the pipeline in this area. Lands in this route segment are VRM class II.

Aboveground Facilities

The area near the Ehrenberg Compressor Station site has a mix of industrial and rural landscape characteristics. El Paso's meter station, Interstate 10 (I-10), and various industrial/commercial buildings are located immediately north, while the area to the south is agricultural and undeveloped. The Colorado River, immediately west of the Ehrenberg Compressor Station site, contributes to a moderate to high landscape quality diminished only by visible residential use on the west bank of the river. The land for the compressor station is not managed by the BLM and does not have a VRM classification.

The Rannells Trap site at MP 11.7 is located within an open scrub-shrub desert landscape near the boundary of the agricultural area of the Palo Verde Valley to the east. The land for this facility is not managed by the BLM and does not have a VRM classification.

The Ogilby Meter Station site is located on flat terrain within an open scrub-shrub desert landscape. The surrounding visual landscape includes high voltage electric lines and I-8 immediately to the south. This site is on land managed by the BLM and has a VRM designation of class II.

The MLVs at MPs 0.0, 11.7, and 75.2 would be located within the fencelines of the three aboveground facilities described above. The MLV at MP 5.7 would be located on flat terrain within an industrial/commercial site along 18th Avenue. The MLV at MP 28.0 would be located on hilly terrain within a scrub-shrub desert landscape. The land for these two MLVs is not managed by the BLM and does not have a VRM classification. Both of the MLVs at MPs 41.6 and 60.3 would be located on flat terrain within a scrub-shrub desert landscape. These MLVs would be on land managed by the BLM that have VRM designations of class II and III, respectively.

4.9 SOCIOECONOMICS

Table 4.9-1 provides a summary of selected demographic and socioeconomic statistics for the states and each of the three counties (Riverside and Imperial Counties, California, and La Paz County, Arizona) where project facilities are proposed. Information is presented based on county-level census data for La Paz and Imperial Counties. Where available, information for Riverside County is based on data from Congressional District 44, which encompasses the eastern portion of the county. These data are more reflective of the project area. Where information is presented from Riverside County rather than from Congressional District 44, data may be skewed because the western half of the county is more densely populated.

TABLE 4.9-1

Existing Socioeconomic Conditions Along the North Baja Pipeline Route

State/County	Population		Population Density ^{a/}		Per Capita Income		Civilian Labor Force	Unemployment Rate (percent)			Top Two Major Industries
	1990	1999	1990	1999	1990	1998		1996	1990	1996	
Arizona	3,665,339	4,778,332	32.3	42.0	\$16,265	\$24,206	2,249,328	5.5	5.5	1. Retail trade 2. Manufacturing	
La Paz	13,844	14,867	3.1	3.3	\$16,437	\$21,612	6,604	7.0	11.8	1. Accommodations and food service 2. Retail trade	
California	29,785,857	33,145,121	190.8	212.5	\$20,654	\$28,163	15,596,139	5.8	7.2	1. Manufacturing 2. Retail trade	
Riverside	571,583 ^{b/}	NA ^{c/}	89.2 ^{b/}	NA ^{c/}	\$14,417 ^{b/}	NA ^{c/}	618,055 ^{d/}	7.0 ^{d/}	8.2 ^{d/}	1. Agriculture 2. Manufacturing	
Imperial	109,303	145,287	26.2	34.8	\$15,255	\$17,353	57,652	24.7	29.4	1. Retail trade 2. Health care and social assistance	

^{a/} Persons per square mile, based on population and area size: Arizona (113,642 sq. mi.), La Paz County (4,518 sq. mi.); California (155,973 sq. mi.), Riverside County (Congressional District 44; 6,411 sq. mi.) and Imperial County (4,175.1 sq. mi.).

^{b/} Represents Congressional District 44, which encompasses the project area in the eastern portion of Riverside County.

^{c/} NA = Not Available.

^{d/} Estimate representative of Riverside County; information not available for Congressional District 44.

Sources: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, STF3A Files; 1998 County Business Patterns; USA Counties General Profile; County Population Estimates for 1999 (www.census.gov); Bureau of Economic Analysis, Regional Accounts Data (www.bea.doc.gov); www.house.gov/bono

4.9.1 Population

All three counties are sparsely populated in the vicinity of the project. The population and density for Riverside County (Congressional District 44) is greatest due to influence from the western portion of the Congressional District.

4.9.2 Economy and Employment

Retail trade ranks as the largest or second largest economic sector in both Arizona and California and in two of the three affected counties (see table 4.9-1). Notably, accommodations and food services ranks first in La Paz County, reflecting the importance of tourism relative to other economic sectors in that county and health care and social assistance ranks second in Imperial County (due largely to the high level of poverty).

Per capita incomes in 1998 (the latest year available) varied among the three counties from \$17,353 in Imperial County to \$21,612 in La Paz County. Unemployment rates for the latest year available (1996) also vary, with the highest rate (29.4 percent in Imperial County) more than three times higher than the lowest rate (8.2 percent in Riverside County).

4.9.3 Housing

Housing statistics are presented in table 4.9.3-1. All three counties have lower median rents and lower median values for owner-occupied housing than their respective state averages.

TABLE 4.9.3-1						
1990 Housing Characteristics in Affected Counties						
State/County	Owner Occupied (percent)	Renter Occupied (percent)	Median Value, Owner Occupied Units	Median Gross Monthly Rent	Owner Vacancy Rate (percent)	Rental Vacancy Rate (percent)
Arizona	64	36	\$79,700	\$438	3.6	15.3
La Paz	74	26	\$56,800	\$337	2.8	18.5
California	56	44	\$194,300	\$620	2.0	5.9
Riverside <u>a/</u>	75	25	\$121,800	\$545	5.5	9.4
Imperial	58	42	\$72,100	\$394	1.6	5.0
<u>a/</u> Represents Congressional District 44, which encompasses the project area in the eastern portion of Riverside County.						
Source: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, STF3A Files (www.census.gov).						

Temporary housing availability varies seasonally and geographically within the counties and the few communities crossed by the pipeline route (table 4.9.3-2). Temporary housing is available in the form of daily, weekly, and monthly rentals in motels, hotels, campgrounds, and rooming houses. The Quartzsite area east of Ehrenberg, Arizona, for example, has more than 50 recreational vehicle (RV) and mobile home parks that help accommodate more than one million visitors each year (Quartzsite Chamber of Commerce, 2000). Temporary housing is least available during the winter, when residents of northern states come to take advantage of the warmer weather. There is less demand for temporary housing during the hot summer

months. Additionally, temporary housing is available in Yuma, Arizona, which is near the southern end of the route but outside the three-county project area.

TABLE 4.9.3-2			
Temporary Accommodations Available			
County, State	1990 Total Number of Rental or Seasonal Housing Units	1990 Rental Vacancy Rate (percent)	1990 Rental or Seasonal Housing Units Available
La Paz, Arizona	20,586	18.5	3,808
Riverside, California ^{a/}	276,978	9.4	26,036
Imperial, California	60,308	5.0	3,015
^{a/} Represents Congressional District 44, which encompasses the project area in the eastern portion of Riverside County.			
Source: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, STF3A Files (www.census.gov).			

4.9.4 Public Services

A wide range of public services and facilities are offered in Blythe, California, near MP 5.0 and across the Colorado River from the Ehrenberg Compressor Station site. Services and facilities include full-service law enforcement, fire department, schools, hospital, emergency response services, water and sewer services, road and bridge department, solid waste disposal, recreation programs, library system, and social services (Butchall, 2000).

Emergency services in the project area are provided by a combination of state, county, and local departments. In the area near the proposed Ehrenberg Compressor Station, emergency fire and medical services are provided by the Ehrenberg Fire Department with ambulance service dispatched from Quartzsite, Arizona. Dispatch services are provided by the La Paz County Sheriff's Department (La Paz County Sheriff's Department, 2001). In areas of Riverside County that do not have a city fire department, fire and medical emergency services are provided primarily by the California Department of Forestry. Emergency medical service is also provided by the Blythe Fire Department in portions of Riverside County and northern Imperial County. In Imperial County, the Imperial County Fire Department provides fire and medical emergency services. Emergency personnel and vehicles can be dispatched from Palo Verde, Winterhaven, Brawley, Holtville, or a number of other locations within Imperial County depending on the nature and exact location of the emergency. Services can be dispatched through the sheriff's office, California Highway Patrol, or other entities depending upon where the emergency call originates (Imperial County Fire Department, 2001).

4.10 CULTURAL RESOURCES

4.10.1 Background

As part of its application, NBP provided the FERC and the CSLC with its overview and survey report documenting the results of literature reviews, site file searches, and cultural resources inventories in California and Arizona (Kirkish *et al.*, 2000). NBP's Discovery Plan and documentation of initial consultation with the California and Arizona State Historic Preservation Offices (SHPO), Native American groups, and other interested parties were also included with the application. NBP's initial consultation letters

described the project and requested input on any known cultural sites that could be affected. On December 22, 2000, NBP filed the first addendum report with the FERC documenting field work conducted during September and October 2000 in California and Arizona and a cultural resources Evaluation Plan (Underwood, 2000; Cleland *et al.*, 2000). On April 2, 2001, NBP filed with the FERC the second addendum report documenting survey of the Powerline North and Powerline South alternative routes in California (Kirkish, 2001). On May 14, 2001, NBP filed with the FERC the third addendum report documenting survey conducted at three extra workspaces in California (Apple, 2001a). On June 11, 2001, NBP filed with the FERC the fourth addendum report documenting survey conducted at extra workspaces and an access road in California and Arizona (Apple, 2001b).

NBP provided the overview and survey report, first addendum survey report, and Evaluation Plan to the California SHPO and the BLM for review and comment on December 18, 2000. On February 1, 2001, the Discovery Plan was provided to the California SHPO for review. On February 5, 2001, the California SHPO provided comments on the overview and survey report, the first addendum report, and the Evaluation Plan. The California SHPO agreed that the delineation and documentation of the area of potential effect (APE), and level of survey were adequate. The California SHPO also agreed with the majority of the site recommendations provided in the reports but requested further documentation for five sites that are located on BLM land that were recommended by NBP's consultants as not eligible for listing on the National Register of Historic Places (NRHP), as well as documentation of BLM concurrence with the recommendations. The California SHPO also requested information as to how sites that were recommended by NBP's consultants for avoidance rather than evaluation would be avoided. The California SHPO has not yet commented on the Discovery Plan and no comments have been received from the BLM. NBP has not filed documentation that the second, third, and fourth addendum reports were submitted to the California SHPO, nor have we received comments on these reports from the California SHPO.

The overview and survey report, first addendum report, and Discovery Plan were provided to the Arizona SHPO on January 29, 2001. In a letter dated March 5, 2001, the Arizona SHPO requested additional information in order to provide comments on the survey reports and Discovery Plan. NBP has not filed documentation that the fourth addendum report has been submitted to the Arizona SHPO, nor have we received comments on this report from the Arizona SHPO.

4.10.1.1 Cultural Contexts

NBP's cultural resources reports included an overview of the history and prehistory of the project vicinity. The summary below was included in Cleland *et al.*, 2000 and Kirkish *et al.*, 2000.

Prehistory

The first posited occupation of the Colorado Desert is termed the Malpais Pattern. The assemblage consists of highly-weathered, core-based choppers and scrapers typically found on heavily patinated desert pavement areas. Unfortunately, obtaining radiocarbon dates has proved problematic and many researchers hold reservations about the antiquity of these sites.

The next temporal period is termed the Paleoindian. It dates from approximately 12,000 to 7,000 years ago. This period has been reasonably well-documented in coastal San Diego County and the southern Great Basin/Mojave Desert. Along the coast, it is known as the San Dieguito Complex; in the southern California deserts, it is called the Lake Mojave Complex. While there may be differences, both assemblages are characterized by core-based choppers and scrapers, with the addition of long-stemmed Lake Mojave type

projectile points and short-stemmed Silver Lake type projectile points. Milling equipment is generally absent. The San Dieguito/Lake Mojave Complex is thought to represent a big game hunting tradition.

The Archaic period follows. The earlier portion of the period is called the Pinto Complex (7,000 to 4,000 years Before Present [B.P.]). It is characterized by crude, percussion-flaked projectile points, and core-based choppers and scrapers. Possible milling stones appear in the archaeological record. Later in the period, the Gypsum Complex appears (4,000 to 1,500 years B.P.). This is characterized by the appearance of fine, pressure-flaked Gypsum, Elko, and Humboldt type projectile points. True metates and manos are found for the first time along with a more diversified array of choppers, scrapers, and other tools. This suggests a shift in economic emphasis from big game to seed collecting and small game.

In the Late Prehistoric period, 1,500 years B.P. (Anno Domini [A.D.] 500) or slightly before, the bow and arrow were introduced, manifested archaeologically by the appearance of small, Cottonwood type projectile points. Pottery was also introduced during this period as a subsistence shift took place from hunting and gathering to floodplain horticulture along the Colorado River.

During the Late Prehistoric period, at least four and probably more, sequential inundations of the Salton Trough occurred as the Colorado River was diverted to the west and filled much of Imperial Valley to an elevation of 40 feet above sea level. Four major inflows of Lake Cahuilla occurred between A.D. 1200 and A.D. 1540 and at least one partial in-filling seems to have occurred during the 17th century.

History

Most of the project area remains open, undeveloped desert today. However, the historical record of the project area is very deep, if sporadic for the first 300 years, extending back to earliest Spanish exploration in 1540. Native American control of the project area was largely unchallenged until the 1850s, at which point the economic development of California to the west and north made control of transportation routes across the desert more important. During the late 19th and early 20th centuries, technological improvement in railroading, mining, and irrigation opened the project area to economic development.

The undeveloped areas of southeastern California, western Arizona, and southern Nevada became a vast military training area during World War II when General George S. Patton, Jr. determined that the desert area would be an ideal training ground for troops participating in the Desert Warfare campaign in North Africa. In March 1942, scouting began in the area to locate suitable sites for the training ground. The headquarters for the California-Arizona Maneuver Area became Camp Young, near Palm Springs. The training area eventually grew to encompass an area twice the size of Maryland and included Camp Young and 10 divisional camps, including Camp Pilot Knob, the main camp closest to the North Baja pipeline route. In May 1944 as the African campaign was winding down, the desert-trained troops were in demand elsewhere. The desert training camps were closed and the troops were sent to fight in other parts of the war. By this time, 1 million troops had trained at the California-Arizona Maneuver Area.

4.10.1.2 Results of Records Research

NBP's records search identified 24 previous cultural resources investigations that cross the proposed pipeline route. These studies, beginning in the 1970s, are largely the result of various proposed development projects such as mining; construction of canals, highways, or transmission lines; or for land exchanges. The majority of previous investigations occurred south of MP 73.0. Most of the previous projects were subject to Federal review and projects conducted within the last 20 years would be considered adequate studies for

their time. However, the survey interval in the past has been greater than the 20-meter interval employed in the current study.

NBP's records search covered 650 feet around the proposed centerline, temporary extra workspaces, access roads, and other facilities, determining that 85 archaeological sites and isolates had been previously recorded, all in California. Seventeen of these resources are isolated finds, including ceramic sherds and flaked stone items such as cores and flakes. The remaining 68 resources are sites, the majority of which are prehistoric archaeological sites. The prehistoric site types are predominantly lithic scatters (including flaking stations) or lithic workshops. The remaining prehistoric site types include a temporary camp, petroglyphs, geoglyphs, cleared circles, trails, and ceramic scatters or pot drops. Two of the 68 sites are prehistoric and historic debris scatters. The reported site types indicate an area that has been extensively utilized by prehistoric peoples, but generally not as a place for long-term habitation.

Historic period resources include an historic structure, a can scatter, four historic roads/trails (including the Bradshaw Trail and Hedges Road), the Gila-Pilot Knob Transmission Line, the Southern Pacific Railroad, Camp Pilot Knob, and the All American Canal. The only building recorded along the route is a 1905 school, now abandoned. The building has also served as a farm bureau and community hall. As indicated by the predominant site type, one of the historic functions of the area has been as a travel route. The travel corridors through the arid Colorado Desert have served to link the coastal and mountain area to the west with the Colorado River and points east. These travel corridors were sometimes built on existing Indian trails. Early routes through the region were established during the Spanish colonial period (1769-1820), with greater access being provided starting in the 1880s with the railroad. Other linear historic period resources of the 20th century include power and water transportation systems.

4.10.1.3 Potential Traditional Cultural Properties

Numerous previous studies of the Colorado Desert have identified a variety of resources that are of traditional cultural concern to the Quechan Tribe and other Native American groups. Information from academically oriented ethnographic sources and Cultural Resources Management reports was reviewed and compiled for the project area. These data must be evaluated with the understanding that the Quechan strongly protect information seen as personal and confidential. Spiritual knowledge among the Lower Colorado tribes is strongly tied to concepts of personal identity and power as well as to cultural and historical identity. Thus, information is often not divulged to the outsider unless there is a very strong rationale for doing so.

Based on the literature review, two specific Traditional Cultural Properties of potential concern have been identified: Pilot Knob and the Trail of Dreams. Pilot Knob is well outside of the proposed project area. The Trail of Dreams has not been completely mapped. The general route of the trail suggests it could cross the proposed route in the Palo Verde or Black Mountain area. In addition, the literature search shows that Native Americans have traditional cultural concerns about a variety of general site types, including geoglyphs, trails, white quartz, vision quest and prayer circles, rock art, cleared circles, spirit breaks and deflectors, and cairns or shrines.

4.10.2 Results of Cultural Resources Survey

Between June and October 2000, NBP conducted cultural resources surveys of the proposed pipeline route, aboveground facility sites, and temporary extra workspaces in Arizona and California. In general, NBP surveyed a 220-foot-wide corridor, either centered on the NBP centerline, or beginning at the edge of the right-of-way of an existing facility. The survey corridor was expanded at feature crossings (*e.g.*, waterbodies, roads, and railroads) to include temporary extra workspaces. The surveys included the entire pipeline right-

of-way, four minor reroutes, access roads, temporary extra workspaces, a portion of the Ehrenberg Compressor Station site, one valve site, the Ogilby Meter Station, and the Ogilby and 18th Avenue Contractor Yards. NBP also conducted cultural resources surveys of the Powerline North and Powerline South alternative routes. NBP has stated that survey at the Ripley Contractor Yard and the southern portion of the Ehrenberg Compressor Station site would be completed when vegetation is cleared. Other additional areas requiring survey may also be identified.

The pedestrian survey of the NBP corridor and ancillary facilities identified 144 cultural resources: 87 prehistoric sites, 41 historic-period sites, 3 sites with both prehistoric and historic components, and 13 isolated finds (6 prehistoric and 7 historic). Twenty-seven of these resources were associated with previously recorded sites.

There are 90 sites with prehistoric components: 36 lithic/chipping stations (3 with ceramics or features), 31 trails (16 with lithics and/or ceramic or rock features), 13 pot drops/ceramic scatters, 3 rock art/geoglyphs, 5 rock rings/cleared circles, and 2 rock features.

There are 44 sites with historic components: 15 canals or drains, 2 railroads, 3 transmission lines, 4 trails/roads, 13 cans and/or refuse scatters, 1 industrial yard, the railroad siding townsite of Ogilby (1), Camp Pilot Knob (1), a well and corral complex (1), 1 cemetery, 1 historic rock feature, and 1 mine shaft.

Of the 144 identified cultural resources, 29 would not be affected because although they are within the survey corridor, they are located outside the proposed construction work area. The remaining 115 cultural resources are located within the proposed construction work area. Twenty-two of the cultural resources identified within the construction work area were evaluated as non-significant on the basis of surface information. Most of these are isolated artifacts, but a few are small lithic scatters. Disturbed segments of historic roads were also found to lack qualities that might make them significant. Twenty-one of the cultural resources identified within the construction work area would be avoided during construction by use of minor reroutes or special techniques such as drilling or boring. These include primarily irrigation canals and other linear features that are still in use.

The remaining 72 resources within the construction right-of-way are currently being evaluated for their eligibility for listing on the NRHP. Table 4.10.2-1 lists the types of resources being evaluated and their evaluation method. Evaluation methods that will be used include documentation, testing, and the application of the California Archaeological Resources Identification and Data Acquisition Program (CARIDAP) for sparse lithic scatters. Site documentation will include close interval surface survey, mapping, and subsurface testing if associated artifacts are present. Testing will include close interval surface survey, and the excavation of shovel test probes and test units. Sparse lithic scatters that are eligible for the CARIDAP approach will be evaluated using close interval surface survey and the excavation of shovel test probes. If this survey should determine that the site no longer qualifies for CARIDAP, additional testing procedures will be implemented. After the survey, NBP will prepare an Evaluation Report and Historic Properties Treatment Plan and provide it to the California SHPO, Arizona SHPO if necessary, the BLM, and the FERC for review. This technical report will include a description of the survey methods and the results of the field work and material analysis. The report will also include the recommendations of NBP's consultants regarding the NRHP eligibility of each resource.

TABLE 4.10.2-1				
Evaluation Methods for Recorded Site Types				
Site Type	CARIDAP	Document	Test	Total
Lithic Scatter	15		5	20
Geoglyph		2		2
Well & Corral Complex		1		1
Industrial Yard		1		1
Ogilby Townsite			1	1
Trail		11		11
Rock Ring/Rock Feature		1	2	3
Ceramic Scatter			2	2
Trail with Associated Lithic Scatter			8	8
Trail with Associated Components			7	7
Lithic Scatter with Associated Components			5	5
Pot Drop			2	2
Historic Road		1		1
Historic Refuse Scatter			7	7
Ceramic Scatter/Refuse Scatter			1	1
Total	15	17	40	72

4.10.3 Native American Consultation

Most of the NBP pipeline route crosses land traditionally occupied by the Quechan Tribe, but ethnographic information indicates that other groups, including the Kumeyaay, Cahuilla, Chemehuevi, Colorado River Indian Tribes, Yavapai, Hualapai, and Hopi may have concerns about the project as well. In May 2000, NBP began coordinating with representatives of the Quechan Tribe regarding potential participation of Native American monitors during the cultural resources surveys. NBP will continue to consult with the Quechan and arrange for monitors to participate in the testing program if the personnel become available.

Beginning in June 2000, NBP initiated consultation with 23 representatives of Native American groups whose traditional territories were in or close to the project APE or who were identified by the SHPO or other knowledgeable party as having potential cultural resources concerns. These groups and any responses or comments provided by these groups are summarized in table 4.10.3-1. Representatives of the Quechan, Kumeyaay, Colorado River Indian Tribes, Chemehuevi, Yavapai, Cahuilla, Hualapai, and Hopi were included. NBP also requested input from the California Native American Heritage Commission regarding additional groups to be contacted and known sacred sites in the project area.

On July 19, 2000, NBP met with the Quechan Culture Committee to describe the project and discuss any cultural resources concerns. The committee urged that the pipeline be sited as far from Pilot Knob as possible. On February 8, 2001, NBP held another meeting with the Quechan Tribe. The Quechan indicated that the resources planned for evaluation should not be considered in isolation as single sites. Rather, they are connected spatially, culturally, and spiritually as part of a greater network of cultural heritage. The Quechan commented that they would like to see as little disturbance as possible, and want the project to stay within previously disturbed areas.

In May 2001, Susan Pantell of the Morongo Band of Mission Indians contacted the BLM. The BLM provided Ms. Pantell with maps of the project area. On May 29, 2001, the BLM informed us that Ms. Pantell determined the project would not affect her area of interest.

On May 27, 2001, Alfredo A. Figueroa, a representative of the group "From the Cradle of Aztlan," provided comments on the project. Mr. Figueroa raised concerns regarding the proximity of the proposed facilities to sacred cremation sites and ancient aboriginal trails.

By letter dated June 6, 2001, Salvador C. Garcia, Jr. commented regarding the protection and preservation of a native sacred site within 0.5 mile of the project.

TABLE 4.10.3-1

Native American Contacts

State/Group Contacted	Date	Comment
Arizona		
Yavapai-Prescott Tribe Nancy Hayden, Cultural Resource Director		
Yavapai-Apache Tribe Rebekah Smith		
The Hopi Tribe Wayne Taylor, Jr., Chief		
Hopi Cultural Preservation Office Leigh Kuwanwisiwma	9/25/00	Requested cultural resources reports (initial and addendum survey reports transmitted on 2/5/01).
Hualapai Tribe Tribal Chairperson		
Hualapai Tribe Monza Honga, Tribal Historic Preservation Officer		
Arizona/California		
Chemehuevi Tribal Council Gjrlle Dunlap, Chair		
Chemehuevi Tribal Council Lynn Petach, Head of NAGPRA Committee		
California		
Viejas Band of the Kumeyaay Nation Anthony Pico, Chairperson		
Los Coyotes Reservation Banning Taylor, Chairperson		
Santa Ysabel Reservation Ben Scerato, Chairperson		
Sycuan Band of the Kumeyaay Nation Georgia Tucker, Chairperson		
Manzanita Band of Mission Indians Francis Shaw, Chairman		
Campo Reservation Ralph Goff, Chairperson		
Cuyapaipe Band of the Kumeyaay Nation Tony Pinto, Chairperson	7/11/00	None.
Chemehuevi Joseph R. Benitez	9/8/00	Suggested a meeting with Quechan and Yavapai representatives (on 1/29/01, Mr. Benitez agreed that since each of the groups was contacted individually, a meeting was not necessary).
Colorado River Indian Tribe Daniel Eddy, Jr., Chairperson		
Quechan Indian Tribe Earl Hawes		

TABLE 4.10.3-1 (cont'd)

Native American Contacts

State/Group Contacted	Date	Comment
Quechan Tribe Culture Committee	7/19/00 (meeting)	Avoid Pilot Knob area; meeting with Tribal Council held 2/8/01; field visit with Culture Committee held 2/10/01.
	2/10/01	Field visit along the pipeline route.
	4/21/01	Field visit along the pipeline route.
Fort Yuma Quechan Tribal Council Michael Jackson, President	2/10/01	NBP provided survey results to the Tribal Council. The Quechan have concerns and would prefer an alternative alignment in Arizona.
Torres-Martinez Desert Cahuilla Indians Mary Belardo, Chairperson		
Agua Caliente Indian Reservation Richard Milanovich, Tribal Chair	6/26/00	Project is not within our traditional use area.
Morongo Band of Mission Indians Mary Ann Andreas, Chairperson	12/1/00	None.
Morongo Band of Mission Indians Susan Pantell	5/29/01	Based on provided maps, the project will not affect our area of interest.
Alfredo A. Figueroa	5/27/01	Raised concern regarding the placement of the project facilities near sacred cremation sites and ancient aboriginal trails.

4.11 AIR QUALITY AND NOISE

4.11.1 Ambient Air Quality

The climate of western Arizona and southeastern California is arid to semi-arid. The prevailing wind direction near the Ehrenberg Compressor Station is from the west northwest through the southwest. The prevailing wind direction along the proposed pipeline route may vary moderately based on location and landscape.

The North Baja Pipeline Project would include one compressor station and two meter stations. One meter station would be located at the Ehrenberg Compressor Station and the other would be located in Imperial County, California (Ogilby Meter Station). NBP proposes to install four gas-fired centrifugal compressor units and one 1,085-hp gas-fired reciprocating backup generator at the Ehrenberg Compressor Station. NBP proposes two possible configurations for the Ehrenberg Compressor Station. The two configurations are: 1) four 6,270-hp Solar turbines with generator operation limited to 50 percent; or 2) four 7,200-hp Rolls Royce turbines and with generator operation limited to 35 percent. In either scenario, only three of the compressor units would be operational at any given time; the fourth compressor unit would act as a spare unit. NBP would also install a 50-hp natural gas-fired backup power generator at the Ogilby Meter Station.

Ambient air quality is protected by Federal, state, and local regulations. The EPA has developed National Ambient Air Quality Standards (NAAQS) for certain criteria pollutants. These criteria pollutants are: nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter less than 10 microns in diameter (PM₁₀), carbon monoxide (CO), ozone (O₃), and lead (Pb). The primary pollutants emitted by natural gas combustion units are NO₂ and CO. The NAAQS for NO₂ are 100 micrograms per cubic meter (µg/m³) or 0.053 part per million (ppm) annually. The NAAQS for CO are 10,000 µg/m³ (9 ppm) for an 8-hour averaging period and 40,000 µg/m³ (35 ppm) for a 1-hour averaging period. In addition to the NAAQS, state and local ambient air quality standards have been established for criteria pollutants. These standards must be at least as stringent as the NAAQS. As established in Sections R-18-2-201 through 206 of the Arizona Administrative Code (AAC), the ambient air quality standards for Arizona are the same as the NAAQS. The ambient air quality standards for California, as established in Title 17 Section 70200 of the California Code of Regulations, vary from the NAAQS. The California 1-hour standard for CO is 23,000 µg/m³ (20 ppm). In addition to the annual NO₂ standard, California has established a 1-hour NO₂ standard of 470 µg/m³ (0.25 ppm).

The attainment status of areas in Arizona and California can be found in the CFR, Title 40, Parts 81.303 and 81.305, respectively. Regional air basins are designated as either in attainment or nonattainment of the NAAQS. The Ehrenberg Compressor Station would be located in La Paz County, Arizona, the Ogilby Meter Station would be located near the end of the pipeline in Imperial County, California, and the pipeline would be located in La Paz County, Arizona and Riverside and Imperial Counties, California. The air quality status of these counties is presented in table 4.11.1-1.

TABLE 4.11.1-1						
Attainment Status of Affected Counties						
County	Pollutant					
	PM ₁₀	SO ₂	NO ₂	CO	O ₃	Pb
La Paz	A	A	A	A	A	A
Riverside	NA - Serious	A	A	A <u>a/</u>	NA - Severe - 17	A
Imperial	NA - Moderate	A	A	A	NA	A
<u>a/</u> Part of Riverside County is in nonattainment for CO; however, the proposed pipeline will not be routed through this portion of the county.						
PM ₁₀	particulate matter less than 10 micrometers in diameter					
SO ₂	sulfur dioxide					
NO ₂	nitrogen dioxide					
CO	carbon monoxide					
O ₃	ozone					
Pb	lead					
A	attainment					
NA	nonattainment					

The Mojave-Yuma Intrastate Air Quality Control Region, in which the Ehrenberg Compressor Station would be located (La Paz County, Arizona), is designated as in attainment of the NAAQS for all criteria pollutants. Ambient monitoring data are not available for La Paz County, Arizona. However, Twentynine Palms monitoring data, which are the most representative data available, indicate that the area is in attainment of the NAAQS for PM₁₀, NO₂, O₃, and CO. The Twentynine Palms monitoring data were approved by the California Energy Commission (CEC) personnel for estimating ambient air concentrations in Blythe, which is 4 miles from the Ehrenberg Compressor Station. CEC personnel stated that "Twentynine Palms and Blythe are similar sized towns, located at a fair distance from large urban areas. The quantities of emissions originating from these two communities should be similar, primarily from motor vehicles; therefore, the ambient air quality for these localized pollutants should be similar between these two communities. Thus, staff concludes that PM₁₀, NO₂, and CO ambient data from Twentynine Palms represent similar ambient levels in Blythe" (CEC, 2000)^{2/}. We agree with CEC personnel.

The Salton Sea Air Basin, in which the Ogilby Meter Station would be located (Imperial County, California), is designated as in attainment for all criteria pollutants except PM₁₀ and O₃. The area is classified as moderate nonattainment for PM₁₀ and section 185A, also known as transitional, for O₃.

4.11.2 Noise

At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of the day and throughout the week. Variation is caused in part by changing weather conditions, the effects of seasonal vegetative cover, and manmade activities. Two measures used by Federal agencies for the time-varying quality of environmental noise known to affect people are the 24-hour equivalent sound level (L_{eq(24)}) and the day-night equivalent sound level (L_{dn}). The L_{eq(24)} is the level of steady sound with the same total (equivalent) energy as the time-varying sound of concern, averaged over a 24-hour

^{2/} La Paz County is in attainment of the NAAQS for SO₂, O₃, and Pb as well. However, no data are available for these pollutants from the Twentynine Palms monitoring station.

period. The L_{dn} is the $L_{eq(24)}$ with 10 decibels of the A-weighted scale (dBA) added to nighttime sound levels between the hours of 10 p.m. and 7 a.m. to account for people's greater sensitivity to sound during nighttime hours.

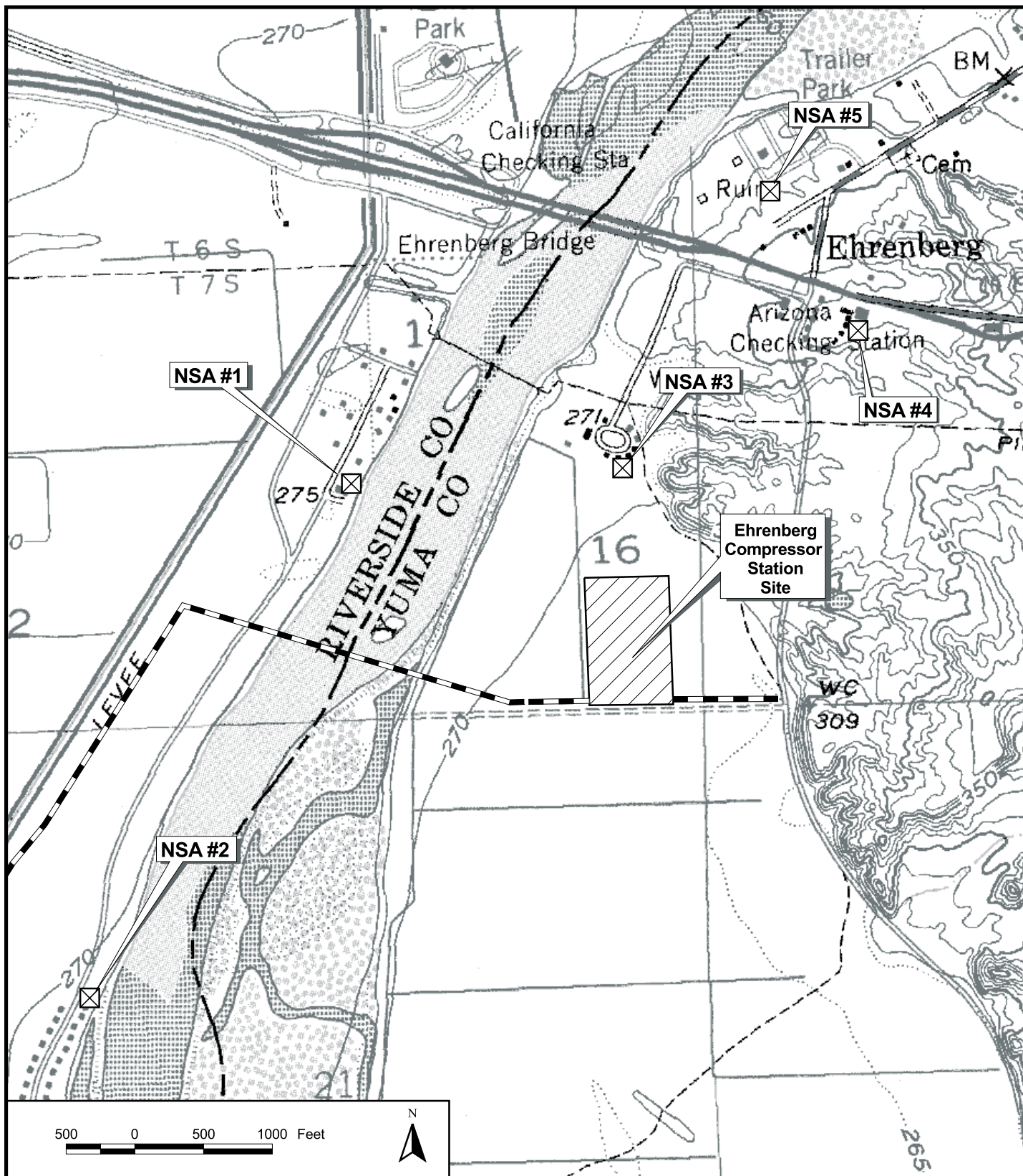
NBP conducted a sound survey at five locations representative of NSAs in the vicinity of the proposed compressor station as shown in table 4.11.2-1. These NSAs are single family residences to the southwest, northwest, north, and north-northeast, and a motel to the northeast. They are located between 1,379 and 4,672 feet from the proposed compressor station building. Figure 4.11.2-1 shows the location of each NSA and the noise monitoring location for each NSA.

TABLE 4.11.2-1				
Existing Noise Levels at Nearby Noise-Sensitive Areas <u>a/</u> Ehrenberg Compressor Station				
Noise-Sensitive Area (NSA)	NSA Description	Distance (feet) and Direction from Compressor Station	Existing L_{eq} (dBA)	Existing L_{dn} (dBA)
Location #1	Residence 14600 Riviera Drive	2,252 NW	43.1	49.5
Location #2	Residence 16020 Riviera Drive	4,672 SW	35.4	41.8
Location #3	Pipeline Caretaker House	1,379 N	38.0	44.4
Location #4	Best Western Flying J Motel	3,139 NE	61.9	68.3
Location #5	Sportland Mobile Home Park	3,568 NNE	54.6	61.0
<u>a/</u> Noise survey was conducted on September 20, 2000 between 9:30 a.m. and 11:30 a.m.				
dBA = decibels of the A-weighted scale				
L_{dn} = day-night sound level				
L_{eq} = equivalent sound level				
N = north				
NE = northeast				
NNE = north-northeast				
NW = northwest				
SW = southwest				

The nearest residence is a caretaker house (NSA 3) at the adjacent El Paso facility located 1,379 feet north of the site. NSAs 1 and 2 are private residences on the banks of the Colorado River in Riverside County, California located 2,252 feet northwest and 4,672 feet southeast, respectively, of the site. NSA 4 is the Best Western Flying J Motel located 3,139 feet northeast of the site and adjacent to the Flying J Travel Plaza and I-10. NSA 5 is in the Sportland Mobile Home Park on the north side of I-10 located 3,568 feet north northeast of the site.

The primary sources of noise in the area are traffic on I-10 and diesel trucks idling at the travel plaza and motel. Irrigation pumps also contribute to noise levels near the Colorado River. Existing L_{dn} sound levels at the NSAs ranged from 41.8 dBA to 68.3 dBA. Locations nearer the highway experienced higher noise levels than those more distant.

The proposed Ogilby Meter Station would be constructed near the south end of the pipeline route adjacent to I-8. There are no residences or other permanent structures within 1 mile of the site. The ambient sound levels were not measured, but would be approximately the same or lower than the levels determined in the vicinity of the Ehrenberg Compressor Station.



LEGEND



-  Proposed Route
-  Noise-Sensitive Area

Figure 4.11.2-1
North Baja Pipeline Project
 Location of Noise-Sensitive Areas